



Illustration from an early Phoenix advertisement

HOW PLEASANT it is for a man to while away an occasional leisure hour reminiscing over the friends, places and happenings of yesteryear. A half smile will pull at the corners of his mouth as he recalls the boon companions of boyhood with whom he spent those carefree days. Then, perhaps, he recalls the old house. How well he remembers its every room . . . the well-worn carpeting on the stairs, the pictures in their massive frames, the cut glass that sparkled on the sideboard. Then he sees himself, both self-conscious and exultant, as he takes a turn down the street in his first long-trousered suit. Then he recalls how, with hammering heart, he applied for his first job, and later, demanded his first shave in the barber shop. What a host of memories project themselves out of the past! It's good for a man to occasionally indulge in such pleasurable musings. They furnish brief vacations from the grim and uncompromising realities of the present. And it's good for an organization to review its history, too. Not just with the thought of magnifying its own achievements. But as a source of information to those who are users or prospective users of its products — to present to them

its accomplishments of the past, and to thus indicate where developments in necessary products and processes are likely to originate in the future. As we review our half century in the packaging industry, one accomplishment by which we were able to be of better service to glass packers, stands out boldly. It is the development of the C T Cap. Until 1922, screw caps were manufactured with almost every conceivable size, shape and pitch of thread. This caused much confusion among glass manufacturers and packers. In 1922 the Phoenix Metal Cap Co. (then the Phoenix-Hermetic Co.) pioneered a standard, shallow, continuous thread closure and named it the C T Cap. It was an immediate success with glass manufacturers and packers. Since that time its use has multiplied a hundred fold. It now seals foods, drugs, cosmetics, wines, liquors, chemicals and kindred products packaged in glass containers. The happenings of 18 years ago are only memories to be recalled at odd moments. The origination of the Phoenix C T Cap is history, too. But the new era of simpler and more effective glass packaging which it introduced promises to be a never ending one.

PHOENIX METAL CAP CO.

CHICAGO, ILL. • BROOKLYN, N. Y.

Branch Offices: Philadelphia, Baltimore, Boston, Cleveland, Cincinnati, St. Louis, San Francisco and Los Angeles.

MODERN PACKAGING

C. A. BRESKIN, Publisher

A. Q. MAISEL, Editor



SEPTEMBER

The retail store has undergone a complete transformation in the last 10 years. Store layout, store lighting and store equipment—all have changed. Store methods of handling incoming and outgoing products have been radically revised. In September, Modern Packaging brings you a detailed study by the Institute of Package Research—presented in a series of articles—relating these changes to the field of packaging and display. Packagers in the future will find the data contained in our September issue an invaluable aid in guiding them in the design of new containers and new displays along lines which will take advantage of new retailing conditions.

Cover, this issue, by Ed Pardee

AUGUST 1940

VOLUME 13 NUMBER 12

New technique for meat loaf wrapping.....	31
Permeability of packaging materials, by H. V. Churchill	34
Ultra high-speed photography.....	36
Specifications for the package purchaser, by H. B. Coats, Ph.D.	39
Recent developments in package inks, by William F. Talbot	40
How humidity affects paperboard, by E. A. Throckmorton	42
Announcing the 10th annual All-America Package Competition.....	43
Fungicides for package papers, by D. K. Ballman	46
Packaging pageant.....	49
Silver as a package coating material, by A. M. Setapen	50
Fabrication of vinyl sheet packages.....	52
Multi-color patterned corrugated.....	56
Food Technology Institute Conference.....	58
Locker plants as package outlets.....	62
Dispensing displays: part 2 (a study by the Institute of Package Research)	69
Lightweight cast metal display.....	71
Display gallery.....	72
Novel optical demonstration technique.....	74
Cast clay relief displays.....	77
New Northam Warren plant: part 2	81
Equipment and materials.....	84
For your information.....	88
Plants and personalities.....	90
Index of advertisers.....	106



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"FEEL" AND EYE-APPEAL..



Score Heavily in J. R. Watkins' House-to-House Selling!

Have you ever drawn your fingers over the surface of a carton printed on A.C.M. Clay Coated Board? Try it! A velvety smoothness greets your touch. And as you grasp it more firmly, you quickly sense a stronger, more rigid quality. Its appearance is equally impressive. Whites, colors and varnish radiate with unusual brilliance . . . offer an appeal to the eye which we believe is unapproached by the effect obtained with any other kind of carton board in the world!

The swing to A.C.M. Clay Coated by so many of our country's most successful merchandisers is now more pronounced than ever! Perhaps you also will have better looking, better selling packages if you change to A.C.M. Clay Coated. Ask your carton maker about this better board, or write our nearest office today for all the facts.



*The trend
is toward*

A.C.M. *Clay Coated* CARTONS AND CARTON BOARD

AMERICAN COATING MILLS, INC.

GENERAL OFFICES AND MILLS: ELKHART, INDIANA
22 E. 40TH STREET, NEW YORK • WRIGLEY BUILDING, CHICAGO



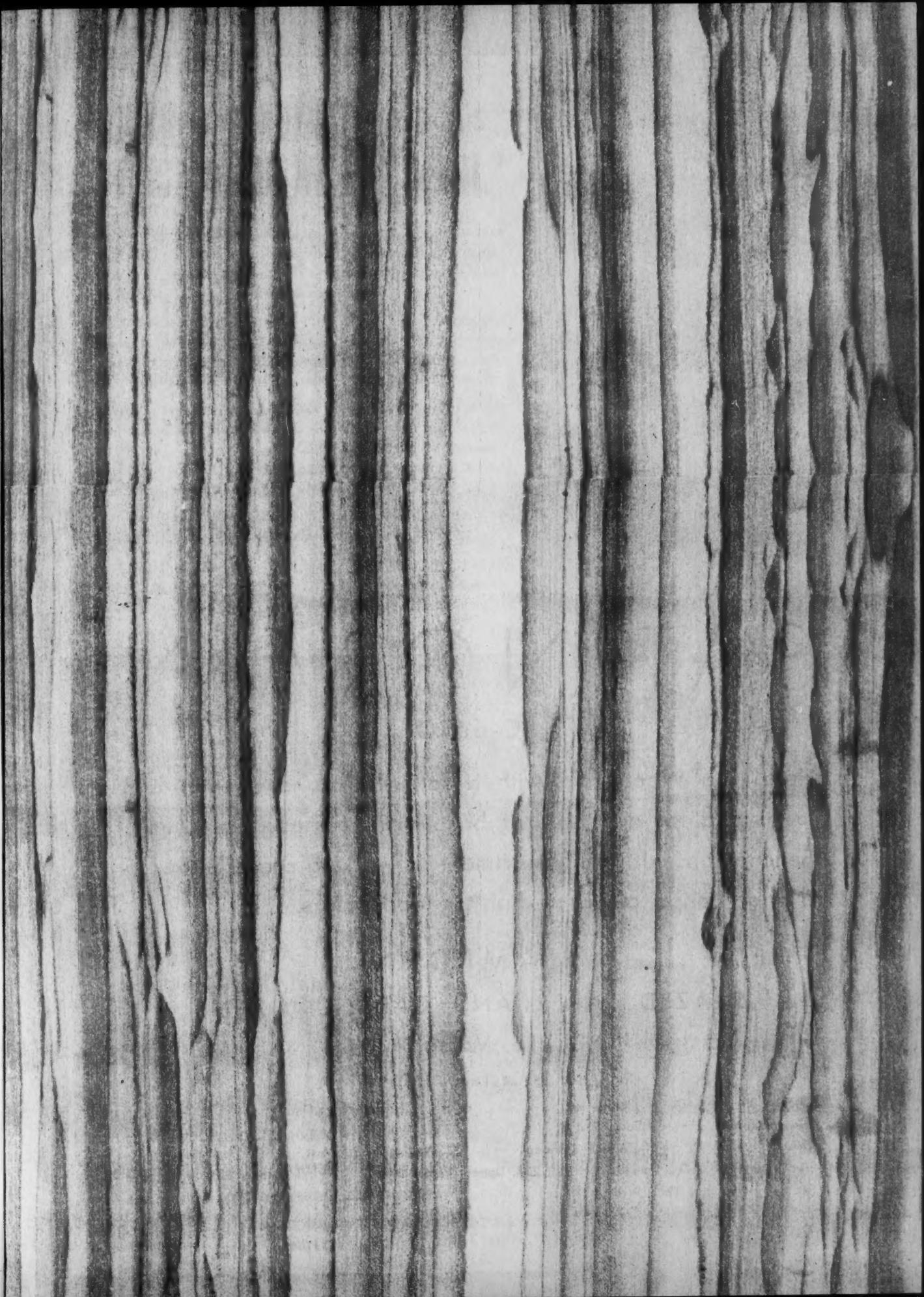
A good thought passed on by the makers of



KVP

**FOOD PROTECTION
PAPERS**

KALAMAZOO VEGETABLE PARCHMENT COMPANY
PARCHMENT, KALAMAZOO, MICHIGAN



SATINGRAIN

C-66-O

Here is a Woodgrain with a satin look and a satin feel just suited for any type of box where appearance counts. Send at once for the assortment of working sheets showing a wide range of wood finishes and colors.

HAMPDEN
GLAZED PAPER AND CARD COMPANY
Holyoke, Massachusetts

SALES REPRESENTATIVES

Chicago, Ill. — 500 So. Peoria St.

New York, N. Y. — 60 East 42nd St.

Toronto, Canada — 137 Wellington St. West

Fred'k. Johnson & Co., Limited — 234, Upper Thames Street — London, E. C. 4, England

Seattle, Wash. — 1203 Western Ave.

Philadelphia, Pa. — 412 Bourse Bldg.

San Francisco, Calif. — 420 Market St.

Dallas, Texas — 3905 Amherst Ave.

SEEING is BUYING when it's "PACKAGED IN ETHOFOIL"

When your product is displayed in a transparent package that under ordinary conditions won't warp or wrinkle, become brittle or discolored from light or aging—then it's displayed to its best advantage—ready for quick sale!

Ethofoil* (Dow Ethyl Cellulose Film) is just such a packaging material. It is the only packaging foil that offers these outstanding advantages: dimensional stability, extreme toughness and flexibility at low temperature and low humidity.

Ethofoil is available in thicknesses up to .020", both in sheets and rolls. Fabrication methods which are low in cost, include adhesives and drawing and because of extreme toughness, ETHEFOIL will not crack during the fabrication process. ETHEFOIL is notable among all foils for easy printability.

For more complete information and specifications write to the Cellulose Products Division of:

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

*Trade Mark Reg. U. S. Pat. Off.



To the shoe package illustrated above, designed by W. C. Ritchie & Co., Ethofoil contributed these outstanding advantages:

- DIMENSIONAL STABILITY
- EXTREME TOUGHNESS
- FLEXIBILITY AT LOW TEMPERATURE AND LOW HUMIDITY





**PACK IN HANDY, EASY-
TO-GET-AT GLASS AND
SELL HOUSEWIVES EXTRA
UNITS FOR COUNTLESS
NEGLECTED USES!**

● Every well-equipped cleaning closet should hold a package of soda bicarb—but how many do?

The principal reason more housewives don't use this sterling cleansing agent is because most soda bicarb is packed in soggy, old-fashioned packages. When wet hands grasp these cartons, they "wilt." It's hard to get a spoon into them. And they're difficult to close. So, housewives who might normally prefer to do much of their cleaning with soda bicarb, use a handier substitute instead. And you lose a sale!

The same thing holds true in kitchen and bath. How many housewives know there are ten separate food uses for soda bicarb? Or how many utilize all its functions in the bath? And how many will take the trouble to learn, when your package is so hard to use—unlovely to look at?

But pack your soda bicarb in a handsome, practical Anchor Hocking jar—and see what happens! Women

"X" marks the spot

**WHERE YOUR
SODA BICARB PACKAGES
SHOULD BE!**

"go for" this sturdy package. They like the easy-to-open, quick-to-close Anchor Amerseal Cap. They prefer the wide mouth that permits easy access to a spoon. And so they buy more soda bicarb—Give it a place of honor in kitchen, or cleaning shelf and in medicine cabinet. They buy two, three or four packages instead of just one, because it's easy to use!

Investigate the possibilities for increased sales, wider distribution, readier acceptance and bigger profits offered by packing your soda bicarb in Anchor Hocking jars. A representative will be glad to give you facts and figures gathered by us in our wide studies on this subject. A phone call, wire or letter will bring him to your desk. Send for him now.

ANCHOR HOCKING GLASS CORPORATION, Lancaster, Ohio
Closure Subsidiary: ANCHOR CAP & CLOSURE CORPORATION
Long Island City, N. Y. and Toronto, Canada



ANCHOR HOCKING

-an unbeatable combination

GLASS
CAPS





UNION PASTE COMPANY

"ESTABLISHED 1866"

1605 HYDE PARK AVENUE

HYDE PARK, MASSACHUSETTS



INDUSTRIAL ADHESIVES
ADHESIVE SPECIALTIES
TRANSPARENT FILM ADHESIVES

Dear Customers:

Enclosed is a picture of our new home, 1605 Hyde Park Avenue, Hyde Park, Mass.

We're well established there now, and have our wider production facilities, our new, bigger laboratories in full swing to serve you better than ever before on your adhesive needs.

There's no need to remind you how good UPACO adhesives are...how they save you money... how they speed up production...how special formulae have been developed to fill special needs.

Come on up and see us. Or test us out with an order, or a chance to bid. See how our increased plant and laboratory facilities will serve you better than ever!

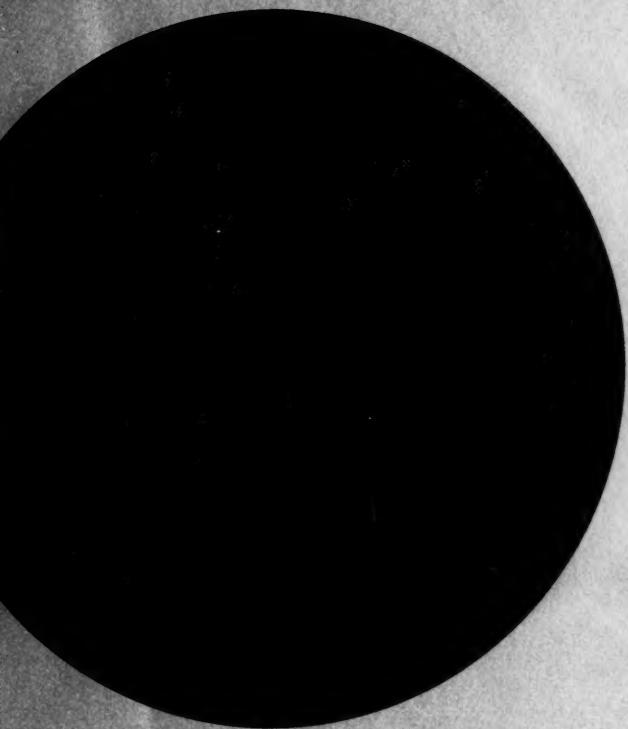
Cordially,

UNION PASTE CO.

1605 Hyde Park Ave.

Hyde Park, Mass.

UNION PASTE CO.



*Nashua's
new chintz will
give it more P.A.**

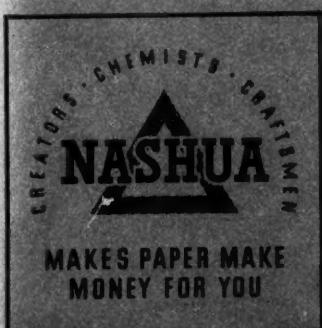
If your product seems afraid to say "Buy me! Can I be yours?" then let Nashua's New Chintz do the proposing! If your public is feminine, sell it with flowers!

These smart designs, and harmonious contrasting colors, win a buyer's "yes" in the twinkling of an eye. And note this paper's

marked resemblance to chintz--it's another triumph for Nashua's craftsmen that's gaining wide acceptance in the box-covering field this year.

The color combinations shown on the swatch are carried in stock--write for complete set of samples and full details.

PACKAGE APPEAL* IS TO PACKAGES WHAT SEX APPEAL IS TO THE LADIES.



MAKES PAPER MAKE
MONEY FOR YOU

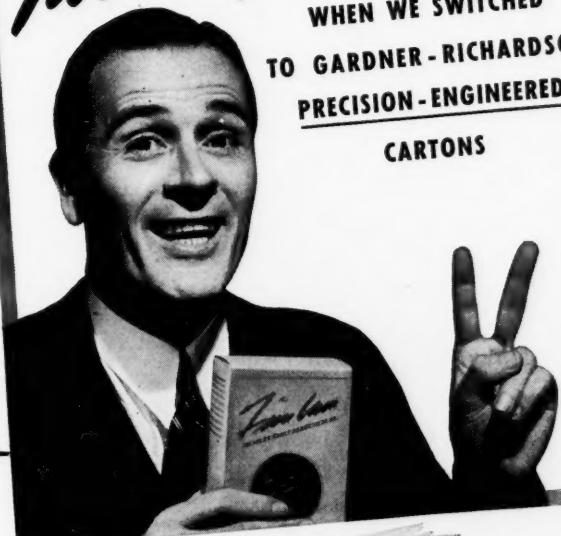
NASHUA GUMMED AND COATED PAPER COMPANY • NASHUA, N. H.

THIS INSERT IS PRINTED ON NASHUA'S NO. 9152 PLATINUM



**WE DISCOVERED A
Two-way Profit**

WHEN WE SWITCHED
TO GARDNER-RICHARDSON
PRECISION-ENGINEERED
CARTONS



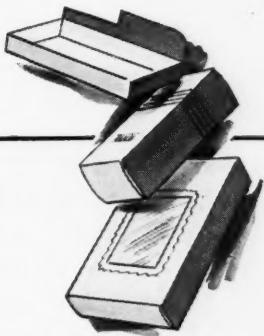
OUR SALES INCREASED—and even our hard-boiled sales manager broke down and admitted that these precision-engineered cartons helped do the job. The board has a quality look. The printing is cleaner—and man, how the colors shine out on a shelf. Gives us quite a hunch on competition—and say, it's a big relief to know that every shipment we get from Gardner-Richardson will measure up to the same high standards.

OUR PRODUCTION COSTS DROPPED because we had fewer interruptions in our filling machines. These precision-engineered cartons are more uniform in caliper and weight. They fold and seal better, too. And maybe you don't think our operators are strong for Gardner-Richardson cartons. They're all getting bigger bonus checks now!



WHAT IS PRECISION ENGINEERING?

It's a quality control developed by Gardner-Richardson—a scientific system of test and check that leaves nothing to chance. It assures better board—custom-made board that's more uniform, more dependable. It means brighter inks, finer dies—more exacting workmanship. Precision engineering is a great step forward in the mass production of folding cartons. It is responsible for showing us a two-way profit and I have an idea it will do the same for you.



Gardner-Richardson will be glad to show you samples of these crisper, brighter, more uniform *precision-engineered* cartons. They cost no more than ordinary cartons—in the long run they cost less. Your inquiry will receive prompt attention.

The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard
MIDDLETOWN, OHIO



THIS SYMBOL is your assurance of greater uniformity, higher quality, better appearance, better product protection—*profit and satisfaction*.

Sales Representatives in Principal Cities: PHILADELPHIA • CLEVELAND • CHICAGO • ST. LOUIS • NEW YORK • BOSTON • PITTSBURGH • DETROIT

Answer this 3-minute QUIZ AND WIN YOURSELF SOME NEW BUSINESS

1. **Q.** Where can I find out about designing a package?

A.

2. **Q.** Where can I get accurate information about how the Food, Drug and Cosmetic Act will affect packages?

A.

3. **Q.** Where can I find out about plastics in packaging? About paper packages? Metal containers? What, in short, is the *only* compendium of packaging information?

A.

4. **Q.** What is the book that goes directly, by reason of its unique distribution system, to the top executives who do the buying for America's leading packaged merchandise?

A.

5. **Q.** What is the book that the leading suppliers of packages, materials, package parts, packaging equipment and services use year in and year out to get their vital selling messages to their most important customers?

A.

[The answers to all the above questions (which ought to be obvious by now), will be found on page 101 of this magazine]





ST. PATRICK'S



EASTER



MOTHER'S DAY

"Special Day" packaging is easy with *Ribbonette!*

REG. U. S. PAT. OFF.

Merchandise appropriately dressed for "Special Days" such as Valentine's Day, Easter, etc., undeniably enjoys a greater degree of salability at those times than merchandise in regular "Every Day" packaging.

A tie of Ribbonette in the right width, pattern and coloring will transform an original "Every Day" package into a "Special" with a minimum expenditure of time, effort and money.

Ribbonette is available in almost unlimited variations of width, pattern and coloring, and can be effectively used on merchandise and packages of all types and descriptions.

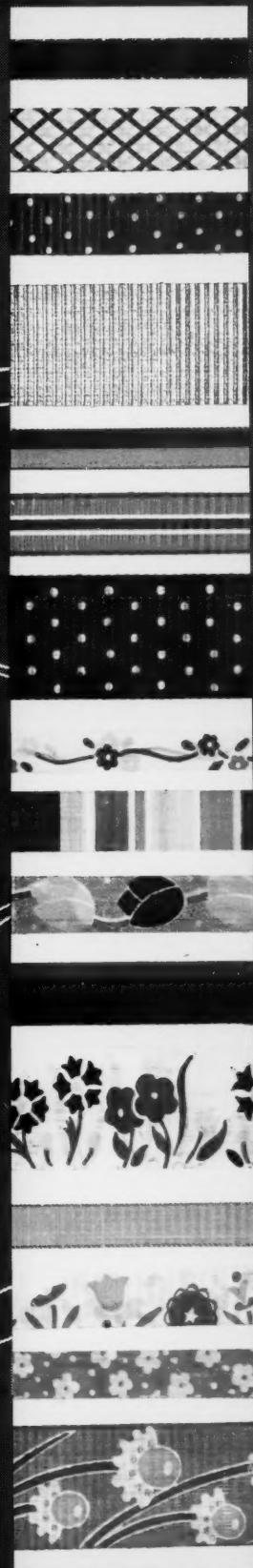
Won't you send us one of your own packages so that we may return it converted to a "Special" with a tie of Ribbonette?

CHICAGO PRINTED STRING CO.

2320 Logan Blvd.,
Chicago, Illinois

225 Fifth Ave.,
New York

1915 — A Quarter-Century of Leadership — 1940



Acme Steel Co.
 Ajax Flexible Coupling Co.
 Allis-Chalmers Mfg. Co.
 American Can Co.
 American Chain & Cable Co.
 American Gas Furnace Co.
 American Laundry Mach. Co.
 American Locomotive Co.
 Anaconda Copper Mining Co.
 Anchor Post & Fence Co.
 Appleton Electric Co.
 Armstrong Machine Works
 Atlas Lumnite Cement Co.
 Atlas Powder Co.
 Bakelite Corp.
 Baldwin Belting & Leather Co.
 Baldwin-Duckworth Div.
 Baldwin-Southwark Corp.
 W. F. & John Barnes Co.
 Bethlehem Steel Co.
 Black & Decker Mfg. Co.
 Blaw-Knox Co.
 Brown & Sharpe Mfg. Co.
 Bucyrus Erie Co.
 Bullard Co.
 Butler Mfg. Co.
 Byers Machine Co.
 Calco Chemical Co.
 Canadian Ingersoll-Rand Co.
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 Celluloid Corp.
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 Chicago Bridge & Iron Co.
 Chicago Molded Products Co.
 Cincinnati Bickford Tool Co.
 Cincinnati Milling Machine Co.
 Cincinnati Shaper Co.
 Clark Controller Co.
 Cling Surface Co.
 Colgate-Palmolive-Peet Co.
 A. M. Collins Mfg. Co.
 Columbia Alkali Corp.
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 Continental-Diamond Fibre Co.
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 Cuno Engineering Corp.
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 Detroit Rex Products Co.
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 Dodge Mfg. Corp.
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 Fairbanks Morse & Co.
 Farrel-Birmingham Co., Inc.
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 General Electric Co.
 General Railway Signal Co.
 Gisholt Machine Co.
 Globe Steel Tubes Co.
 B. F. Goodrich Co.
 Gould Pumps, Inc.
 Graver Tank & Mfg. Co.
 Graybar Electric Co.
 A. P. Green Fire Brick Co.
 Guardian Electric Mfg. Co.
 Hamilton Mfg. Co.
 Hays Corp.
 Heald Machine Co.
 Hinde & Dauch Paper Co.
 Hercules Powder Co.
 Hevi Duty Electric Co.
 Hilo Varnish Corp.
 Hotstream Heater Co.
 Hyatt Bearings Div.
 Hygrade Sylvania Corp.
 Independent Pneumatic Tool Co.
 Ingersoll-Rand Co.
 Insley Mfg. Corp.

Johns-Manville Co.
 Joy Mfg. Co.
 Keasby & Mattison Co.
 Koehring Co.
 Lamson & Sessions Co.
 Landis Tool Co.
 R. K. LeBlond Machine Tool Co.
 R. G. LeTourneau, Inc.
 Lignum-Vitae Products Corp.
 Lindberg Engineering Co.
 Link-Belt Co.
 Locke Insulator Co.
 Magnus Chemical Co.
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 Mason-Neilan Regulator Co.
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 Mattison Machine Works
 Milcor Steel Co.
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 Morse Chain Co.
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 National Carbon Co., Inc.
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 Nation Vulcanized Fibre Co.
 Neptune Meter Co.
 New England Coke Co.
 New Jersey Zinc Co.
 N. Y. Belting & Packing Co.
 Nicholson File Co.
 Northern Electric Co., Ltd.
 Norton Co.
 Novo Engine Co.
 Ohio Brass Co.

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 Owens-Illinois Glass Co.
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 Wagner Electric Corp.
 Walton Truck Co.
 Warner & Swasey Co.
 Waukesha Motor Co.
 West Disinfecting Co.
 West. Elec. Instrument Corp.
 West Penn Power Co.
 Western Precipitation Corp.
 Westinghouse Elec. & Mfg. Co.
 Weyerhaeuser Sales Co.
 Wheeler Reflector Co.
 Wickwire Spencer Steel Co.
 Edwin L. Wiegand Co.
 Wilson Mechanical Instr. Co.
 Wiremold Co.
 Wolverine Tube Co.
 York Ice Machinery Corp.

Who finds it pays?

These are some of the 843 companies that sent representatives to the national N. I. A. A. Conference last year . . . to take part in group discussions of marketing problems . . . present case studies . . . and study the advertising methods of industrial leaders.

You are invited to the 18th annual Conference of industrial sales promotion and advertising executives in Detroit next September . . . to get new ideas and information that will make your 1941 program more effective, more profitable. Write now for details.

International Nickel Co.
 Irvington Varnish & Res. Co.
 Johnston & Johnston, Inc.

Okonite Co.
 Osburn Mfg. Co.
 Otis Elevator Co.

**18th Annual CONFERENCE and Exposition
 National INDUSTRIAL ADVERTISERS Association
 SEPT. 18, 19, 20 . . . DETROIT . . . HOTEL STATLER**



*What's smarter than
one of our new
PERFECTION
GRAVURE BOX COVERINGS
to thrill the
1940 Christmas shopper*

This is one of our many new scintillating patterns—all rich, colorful and glamorous—on white, colored and metallic backgrounds.

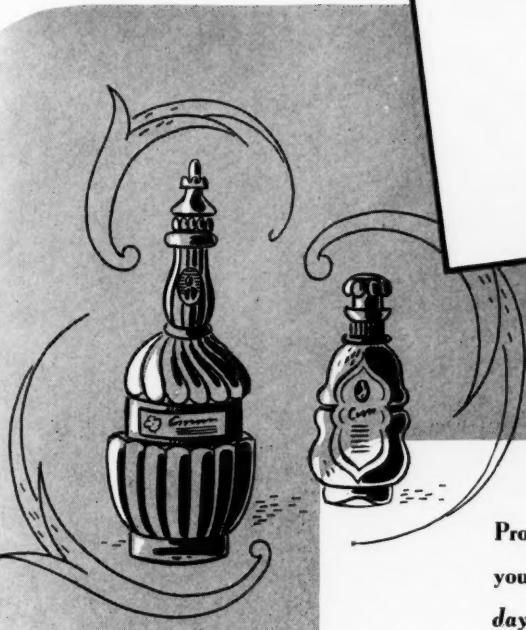
crs

Write us for
samples and suggestions—
no obligation

crs

ROYAL PAPER CORPORATION
Manufacturers of Decorative Papers
ELEVENTH AVENUE AND 25TH STREET • NEW YORK, N. Y.

This sample — Pattern No. 588-B — Platinum Metalique base



Klopstock was questioned regarding the meaning of
a passage in his poem. He replied, "God and I both
knew what it meant once; now God alone knows."

CESARE LOMBROSO

Probably your package was the best you could buy when you first brought your product out. The reasons for its design were sound. It did the job — *in its day*.

But glass packing has changed tremendously! Designs are cleaner today — more streamlined. Glass bottles must please the eye of super-critical moderns who have no patience for extraneous curly-cues. Ginger-bread designs are outmoded, and today's shopper will not buy a "dated" product — unless it's *up-to-date!*

Perhaps your package may not be doing the best possible job for your product. It's a question that's worth asking, anyhow. And for the answer, try Carr-Lowrey's "three-point service."

The "3-point service" stands for (1) Attractiveness, (2) Practicability, (3) Economy. These triple criteria, applied to glass packages in the creative stage as well as in production, are building new sales for hundreds of leading packagers of cosmetics, drugs, household specialties and foods.



Simplicity of design crystallized into clear flint glass gives an excellent example of Carr-Lowrey's "3-point service."



Carr-Lowrey Glass Co.

Factory and Main Office: BALTIMORE, MD.

New York Office: 500 Fifth Avenue • Chicago Office: 1502 Merchandise Mart



Not 1...but 2

advantages when
your package wears
this band!



WHEN a customer says, "Yes, *this* is the brand I want," there's a good chance the "Cel-O-Seal" cellulose closure on that package helped make the sale.

And, it helped *two* ways:

First, "Cel-O-Seal" cellulose bands assure customers that the original goodness and purity of your product have been safely and securely guarded against contamination.

Secondly, "Cel-O-Seal" bands give your package an extra plus of display value. Trim and colorful, designed to harmonize perfectly with your label, they add an eye-catching, sales-catching touch to your package.

"Cel-O-Seal" bands cost only a fraction of a cent each and need no expensive machinery or adhesives for application. They go on easily by hand. Just send us a sample bottle today and we'll gladly show you how "Cel-O-Seal" can improve *your* package. No obligation.

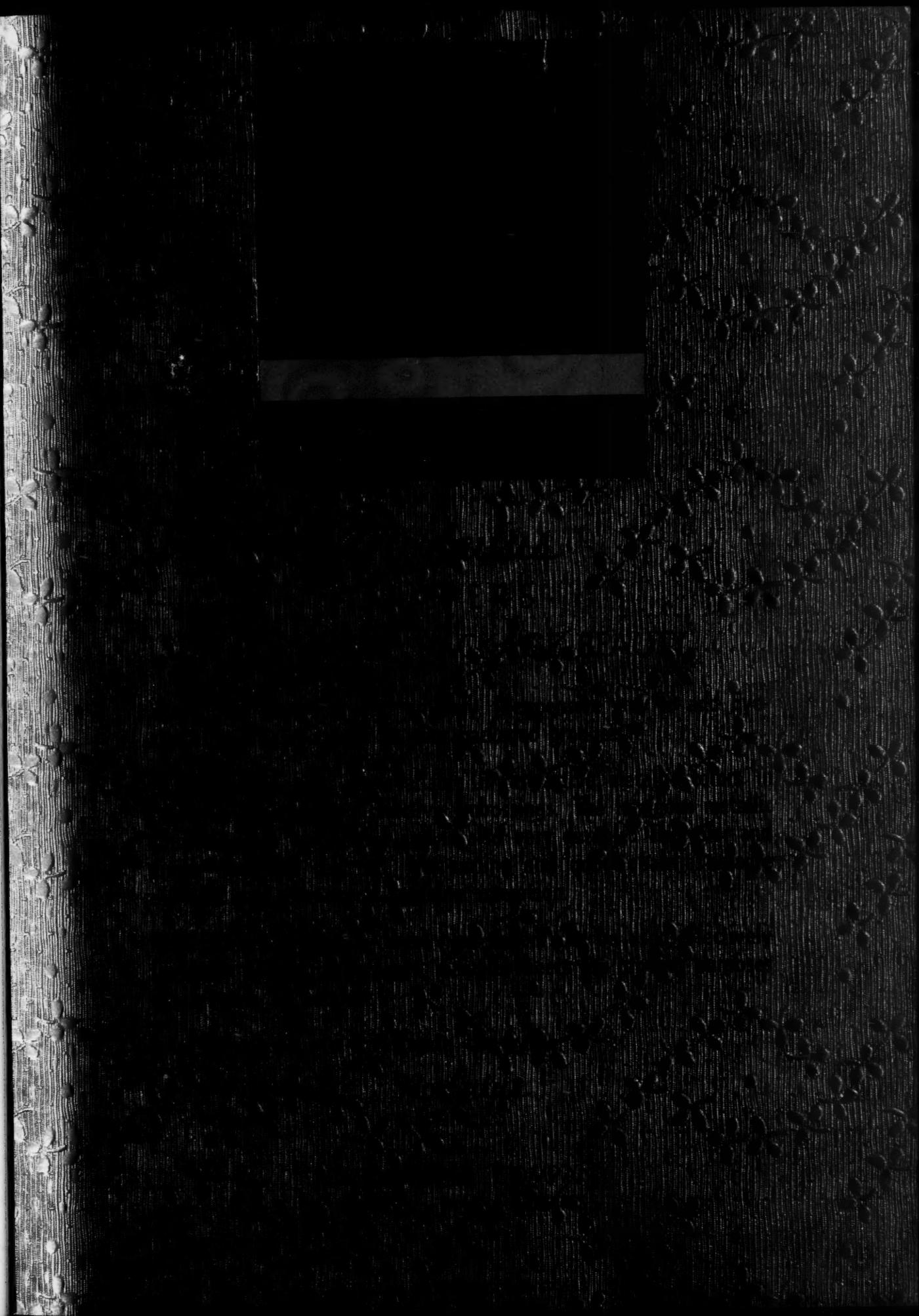
• • •
Visit Du Pont "Wonder World of Chemistry" Exhibits at the
N. Y. World's Fair and on the Boardwalk at Atlantic City

DUPONT

CEL-O-SEAL
TRADE MARK

Sold by

E. I. DUPONT DE NEMOURS & CO. (INC.) "CEL-O-SEAL" SECTION Empire State Building, N. Y. C.	I. F. SCHNIER COMPANY 683 Bryant Street, San Francisco, Cal.
ARMSTRONG CORK COMPANY GLASS & CLOSURE DIV., Lancaster, Pa.	



M

Just
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NE

Maybe You've Got a Packaging Problem and Don't Even Know it!



Vitamin Tablets Gain Display Value and Convenience In New Package By Ritchie

Just to look at it, you wouldn't have said there was much wrong with the package in which these vitamin tablets were formerly sold. But the tablets were set in holes cut in paperboard, which caused the buyer no end of inconvenience. When he tried to remove a tablet, he was more apt than not to force it so far down into the hole that he needed a knife to cut it out.

Ritchie replaced the rigid paperboard with the resilient transparent material you see above. The tablets now rest securely in star shaped slits in the individual pockets and yet are easily removed. They can't be forced down into the hole. And set off by the transparent material, they look more surgically clean — invite new dealer and consumer preference.

Here is an example of how design ingenuity and the proper selection of packaging materials can make a product easier to use and easier to buy. Here is proof of Ritchie's unique ability to combine the advantages of Set-up Paper Boxes and Transparent Packages into one package that sells!

Maybe from the consumer angle your package has some "bugs" you don't even know about. Or even if it's doing a fair job now, it might be made to do a better one. Why not look into it? Why not see how Ritchie's 74 years experience, money-saving manufacturing facilities and free design service can work to your advantage, too?

Ritchie
AND COMPANY
W. C.
SET-UP PAPER BOXES
FIBRE CANS
TRANSPARENT PACKAGES
8849 BALTIMORE AVENUE • CHICAGO

NEW YORK

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LOS ANGELES

ST. LOUIS

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YOU HAVE HIM HALF SOLD —when *Western Union Delivers the Sample*

WHEN you spend dollars in styling your container, remember that it costs no more for *impressive* delivery of samples. It's the first impression that counts—that keeps your samples out of the waste basket and off the laboratory shelf.

For every kind of sampling job, for delivery and setting up displays in stores, Western Union Messengers are trained, kept under skilled supervision, are dependable. This service is available in one city or all over the country. Ask the nearest Western Union Manager for details.

Some of the Many National Advertisers Served by Western Union

SMITH, KLINE & FRENCH—Now making tenth delivery of samples to all physicians in United States.

McGRAW ELECTRIC CO.—Telegrams, followed by photographs and packages. Also demonstrations of Toastmaster.

F. & F. LABORATORIES—Fifth consecutive season with us; 30,000,-000 cough drop samples to office workers and dealer packages to all druggists.

CHAS. H. PHILLIPS CHEM. CO.—Twice a year, samples to all dentists.

LIFE SAVERS, INC.—Over 10,000,000 samples distributed.

COLGATE-PALMOLIVE-PEET CO.—60,000,000 premium folders delivered in five years.

WESTERN UNION *Everywhere*



Molders of these closures, from left to right, are: Wheeling Stamping Co., Anchor Cap & Closure Corp., Owens-Illinois Glass Co.

COLORFUL BAKELITE PLASTIC CLOSURES CONTRIBUTE Greater Utility to Successful Packaging

WITH a variety of hues to harmonize with any packaging color scheme . . . in transparent and translucent as well as opaque effects, Bakelite Plastic Closures are an influencing factor in color-styling such sales-winning packages as those shown here.

Equally important, these colorful closures provide many convenience features as well. They are non-absorbent and do not shrink or swell. They are always easy to screw on and off, yet provide tight seals. They are resistant to most chemicals, and retain indefinitely their sparkling self-contained color and lustre.

Bakelite Plastic Closures may be obtained in either

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Unit of Union Carbide and Carbon Corporation

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durable, uniform in temper
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of these qualities by order-
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PACKAGING facts don't stay new for long. Advances in materials and methods crowd each other's heels every year, every month.

A good place to get the whole new set of facts about packaging that have developed since 1937 is at Owens-Illinois. For many of these advances in packaging came into being here.

We can give you today's facts about both glass and metal containers. We are the *one* organization that makes both. We offer impartial advice. Our loyalty is to your interests rather than to a material.

If we don't have the facts you seek, our Packaging Research Laboratory, the largest of its kind in the industry, can ferret them out for you. Their fact-finding covers both dealer and consumer angles, as well as your production problems.

And our service does not stop with containers. We also make plastic and metal closures and corrugated shipping cartons.

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Light up for Sales

Johnson & Johnson
ADDS ILLUMINATED COLOR
WITH SALES BEACONS
OF MOLDED BEETLE

ALWAYS colorful—day and night—is this brilliant red cross of lustrous translucent *Beetle! It guides millions of eyes to J. & J. products...leads them to buy! Designed and manufactured by George Rutledge Company for the First Aid Division of Johnson & Johnson, it is a striking illustration of the use of illuminated color to secure visibility, merchandising power and product tie-in.

Give your displays the benefits of illuminated Beetle color adaptability. Beetle colors are rich tones that are both eye-compelling and restful...full of power to attract and hold attention...and they complement the colors and designs of your packaged merchandise. Not the least of the advantages of Beetle are its chip-and-shatter resistance, its permanence and economy. Your design can be molded and completed in one step—no subsequent painting or polishing is needed.

Costs? Surprisingly low! To the low fabricating costs of molded Beetle are added the savings in freight made possible by its light weight, the reduced cartoning costs permitted by its strength and durability, and the absence of breakage and replacements. Let us give you more facts about Beetle for displays and packages that sell!



BEETLE PRODUCTS DIVISION OF
AMERICAN CYANAMID COMPANY
34 ROCKEFELLER PLAZA, NEW YORK, N. Y.

* Trade-mark of American Cyanamid Company applied to urea products manufactured by it.

FIRST AID KITS

FIRST AID

FIRST AID KIT

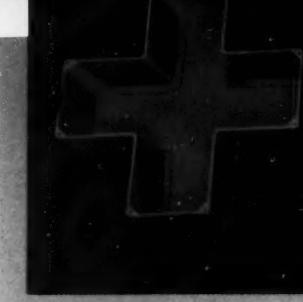
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ARE YOU PREPARED FOR ACCIDENT EMERGENCIES?

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NEW DEMANDS FOR PLASTICS lead to new or improved materials. Cooperation to this end is an important part of the research conducted by American Cyanamid Company at its Stamford Laboratories—among the best equipped and most modern in the world.



WATCH FOR THIS J. & J. DISPLAY in windows and on counters of drugstores throughout the country. Designed and manufactured by the George Rutledge Company, Montclair, N. J., it is an excellent example of the utility of Beetle for illumination that sells.

TO THE LOW FABRICATING COST of molded Beetle are added freight savings made possible by its light weight, reduced cartoning costs permitted by its strength and durability.

THE PLASTIC THAT'S ALL COLOR—IN ALL COLORS

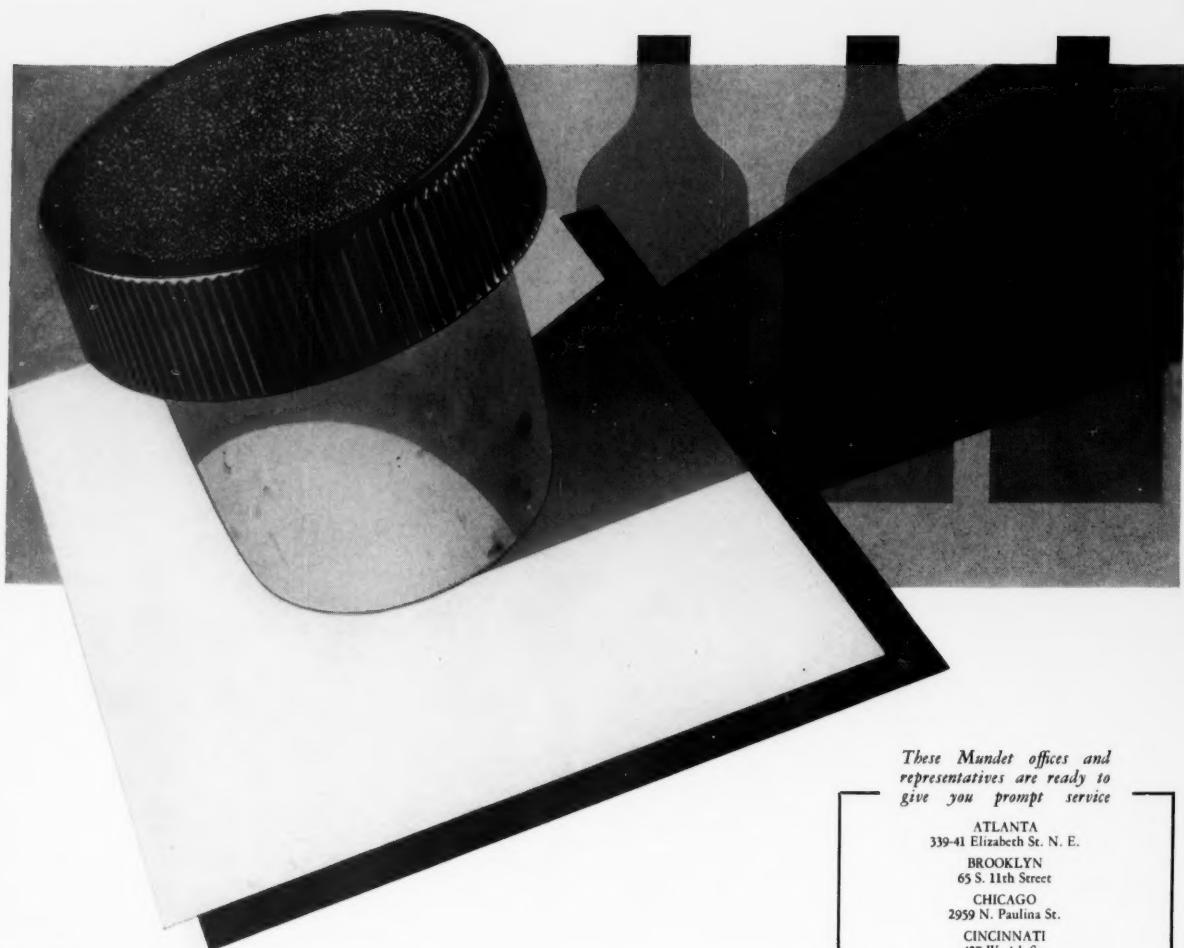
Beetle



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Whatever your requirements may be in the selection of a packaging paper, first follow in the steps of leading manufacturers in almost every field, and see what Riegel has to offer you. Our extensive group of over 130 different lines can furnish the means of overcoming most of the common packaging difficulties and many special ones besides — for our technical and production facilities are truly unequalled. Write us today for either general or specific data.

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Sealed . . . handsomely and securely . . . to win and hold approval . . . this describes your product when it is closed with Mundet Molded-Top Corks. Smartly designed, strongly made . . . Mundet Molded-Top Corks give the reliable protection of an all-cork seal, plus the good looks and convenience of a molded closure. Thru an exclusive method, the cork and molded top are permanently anchored to insure repeated re-seal service. Mundet Molded-Top Corks are made in standard diameters. Write today for free samples, or for suggested solutions to individual closure problems. Address

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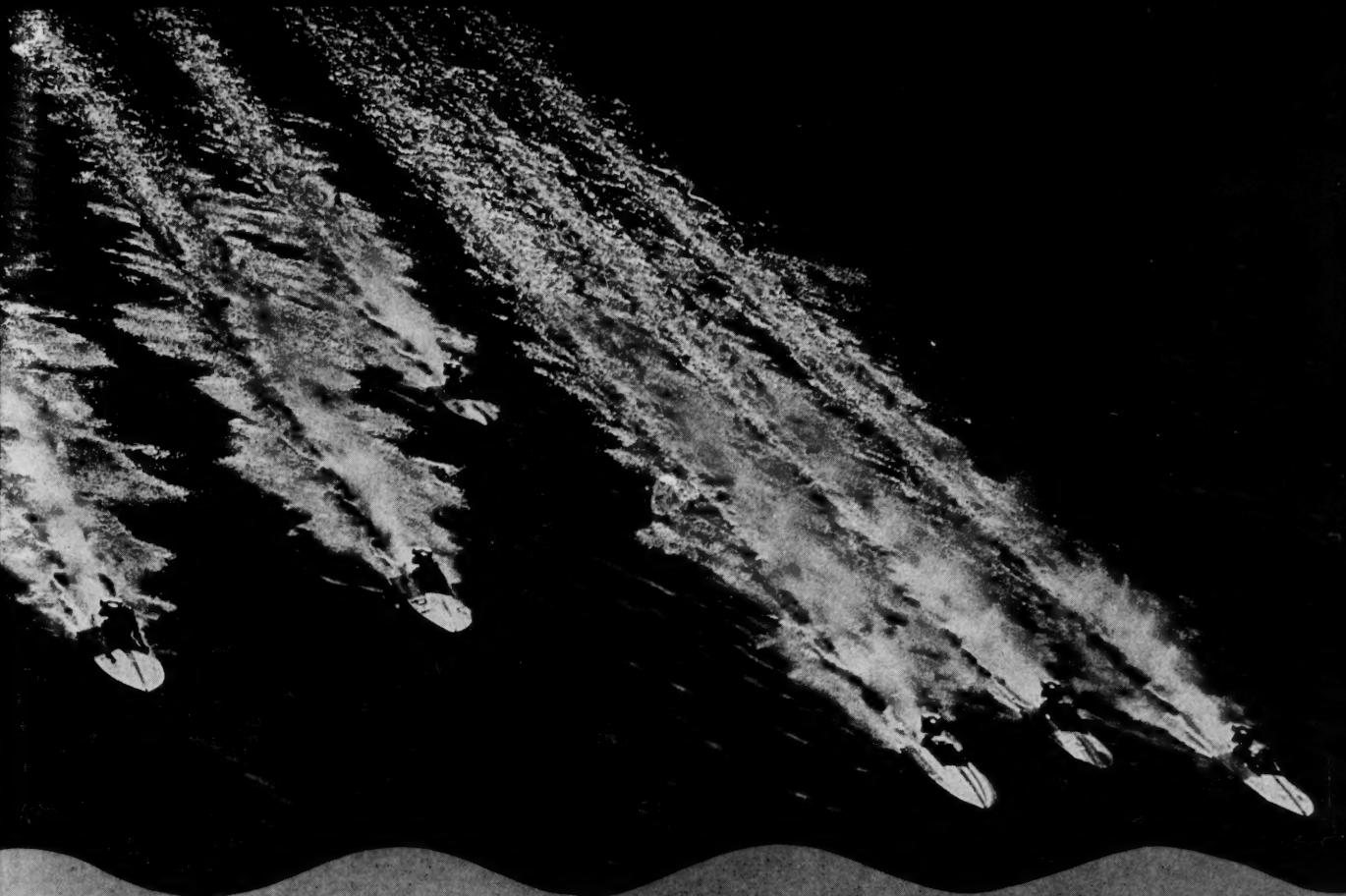
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Who'll be FIRST... at the Finish?

ASK yourself this question about your Packaged product at the point of sale! ★ It takes capable hands, clear heads and motive power to drive an outboard to the finish FIRST. ★ To Packaging, "NATIONAL" brings these same essentials

pointed toward practical Container design and smartly lithographed display effects. ★ "NATIONAL" Container Service faces your starting signal..manned by merchandising experts .. surrounded by creative ideas .. powered by Can-making experience.

With "NATIONAL" You're FIRST at the Point of Sale!

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SUBSIDIARY OF MCKEESPORT TIN PLATE CORPORATION

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Entering your packages and displays in the All-America means placing them in the select company of the leaders of American merchandising. There is no cost or obligation and you may make as many entries as you wish.

And Here Are Some Tangible Benefits:

MAGAZINES & NEWSPAPERS: Publicity in trade and consumer publications totaled hundreds of inches last year including many photographs reproduced. It is estimated that the combined readership of these media is in excess of 7,500,000—a gigantic promotion for the All-America entries, priceless publicity reaching dealers, jobbers, consumers via editorial columns in their favorite publications.

MOTION PICTURES: Modern Packaging's All-America motion picture—in full color—produced as a public service by the sponsors of the All-America, was shown in hundreds of cities from Seattle to Miami, to several hundred thousand interested, responsible men and women.

RADIO & TELEVISION: The Columbia Broadcasting System carried highlights of the 1939 All-America. Station W2XBS televised the All-America motion picture.

EXHIBITS: Representative exhibits of the entries are shown to interested groups throughout the country in store windows, display rooms, etc. All the entries are set up for 3 full months in Modern Packaging's spacious exhibition halls across from the Grand Central Station.

SPECIAL MARCH ISSUE OF MODERN PACKAGING will contain complete photographs and descriptions of all Award Winners and Honorable Mentions.

Each year this volume of publicity, and the attendant prestige, have increased as the All-America Package Competitions expand to include package progress. This year's Competition will be bigger and better than ever before. Enter now. Write for entry blanks to

1940 ALL-AMERICA PACKAGE COMPETITION c/o MODERN PACKAGING

CHANIN BUILDING, 122 East 42nd Street, New York, N. Y.



Teach Your Package To Spell



with a **CAMEO STOCK SEAL**

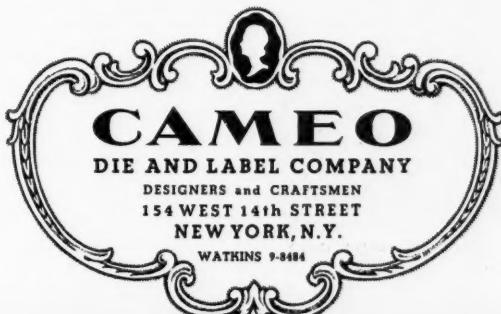


We have scores of Christmas, holiday and gift labels in stock for immediate shipment.

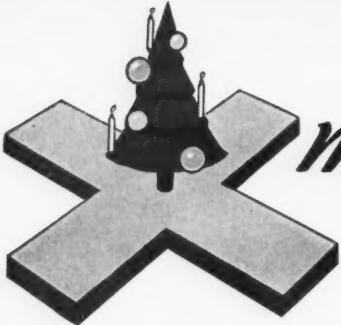
Application of one of these beautifully embossed and die-cut seals transforms your package and your product *instantly* into a special Christmas or holiday gift item.

This stock service is an addition to our unusual facilities for the automatic production of embossed labels in 3 colors. Cameo also presents the exclusive Cameoflex Process—an exquisite combination of fine design, engraving, process printing and embossing.

Try us for your stock or custom embossing needs.



In Canada: CAMEO METAL SEAL & LABEL CO., MONTREAL



mas marks the spot

OF THE YEAR'S TOUGHEST PACKAGING PROBLEMS

THIS year more than ever, holiday merchandising becomes a question of holiday packaging. And Lumarith Protectoid answers the question with a combination of qualities that just can't be equalled in any other material!

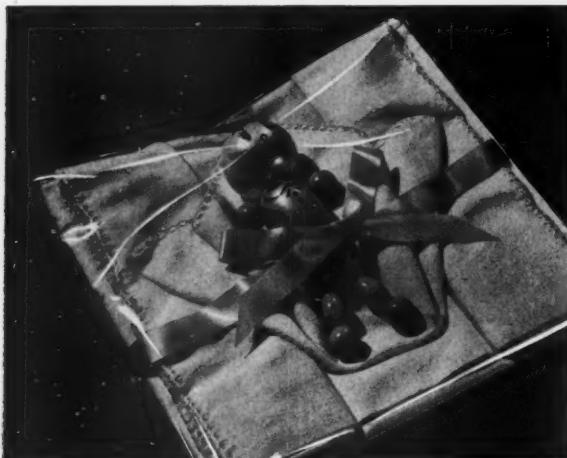
It is so clear, so sparkling, so sheerly transparent that it adds to the glamor of any product.

Packages with printed wraps of Lumarith Protectoid can be completed now, and still look factory-fresh at Christmas. Lumarith Protectoid *never shrinks or wrinkles!* It is not affected by humidity or temperature changes. It does not dry out with age.

Printers will prepare special designs to your specifications and produce Lumarith Protectoid wraps in as many colors as the design requires. Get in touch with Celluloid for names and addresses of Lumarith Protectoid printers nearest you!

LUMARITH PROTECTOID

REG. U. S. PAT. OFF.



One of the many Wearite Specialty Company packages using Lumarith Protectoid.

In transparent wraps, window containers, transparent displays, rigid containers, and laminated applications of every kind . . . all signs point to Lumarith Protectoid as the star of the holiday season! Don't fail to use it as a boost for your business!

Packaging Division, CELLULOID CORPORATION, 180 Madison Avenue, New York City. Established 1872. Sole Producer of Celluloid and Lumarith. (Trademarks Reg. U. S. Pat. Off.)



Container by Allvue Containers, Inc. for Richard G. Krueger, Inc.

If you are working on a transparent or plastic package . . .

Get in touch with
CELLULOID
also Headquarters
for PLASTICS



PREMIUMS AND NOVELTIES •

Though known primarily as a company manufacturing tin containers of highest quality for specific products, Continental also produces many container specialties which serve a wide variety of purposes.

Shown here are but a few of these articles, better classed, perhaps, as premiums or novelties. Of standard design, they may be

purchased from stock, and will meet many a need. If you are looking for attractive premiums of lasting value, why not see what Continental offers. Many items are "naturals" for Chain, Novelty or Co-operative Stores.

Naturally, these specialties show the fine workmanship for which we are famous. A representative is at your service . . . always.

One of a Series Devoted to Packaging Ideas. Copyright 1940 by Continental Can Company, Inc.

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Cost Acc

Reading left
space, can
— light in
"Superior
Bottle"—
includes all

In O



Only when ALL 3



Reading left to right: O-I "Modernistic"—lightweight, straight-sided with ample label space, can be used to give "family identity" to food products. O-I "Stubby Grape Juice"—light in weight, and since it "fits" in refrigerators, a consumer favorite. The O-I "Superior Gallon Jug"—economical for fruit juices, ciders, vinegars. O-I "Cherry Bottle"—lighter in weight with rock-steady base for efficiency in filling. O-I service includes also lithographed or plain closures and sturdy corrugated cartons.

...are PLEASED is your *Salespackage* a SUCCESS

IT'S no cinch to gain this triple acclaim—profitably. It takes hard and expert work, a grasp of the whole art of *Salespackaging*. Which is exactly what we offer you.

Assigned to *your* problem, O-I Field Marketing Men know how to interpret consumer package-preference. O-I Research Men know how to appraise your product's make-up and chemistry. O-I Designers and Production Men can create a quality glass *Salespackage* that keeps within your cost limits. Moreover, they produce that *Salespackage complete*—container, closure and carton... and offer advice on their receiving, filling, casing and shipping.

All of which foretells that you can benefit from a talk with an O-I representative. Owens-Illinois Glass Company, Toledo.



In O-I Salespackaging not one but THREE types of men work for you



O-I MARKETING MEN: report just what the final consumer wants in your *Salespackage*.



O-I RESEARCH DESIGNERS: mesh consumer preference with protection in your *Salespackages*.



O-I PRODUCTION MEN: devise dollar-saving short cuts in filling, cartoning and shipping.



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FINAL INSPECTION

SUN TUBE CORPORATION
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CORELLA

PACKAGING GLAMOUR

Color Design

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09737 SPANISH

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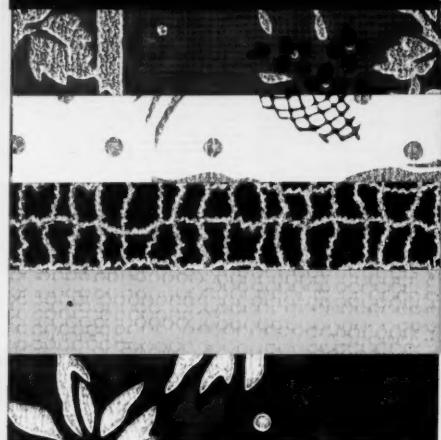
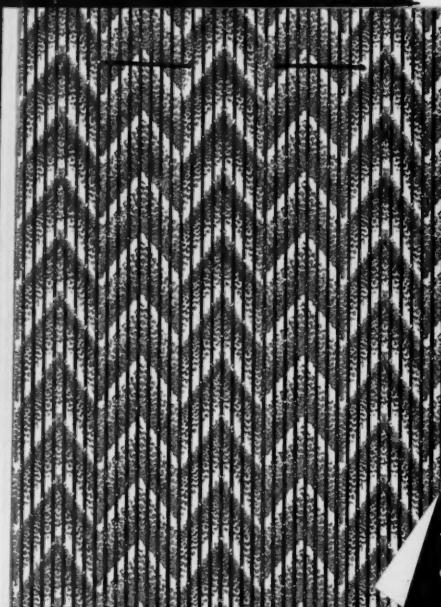
03511-R VIOLETS

04623 NET

04431 TAPESTRY

06290 POINSETTA

This insert printed on
037 Turquoise Corella

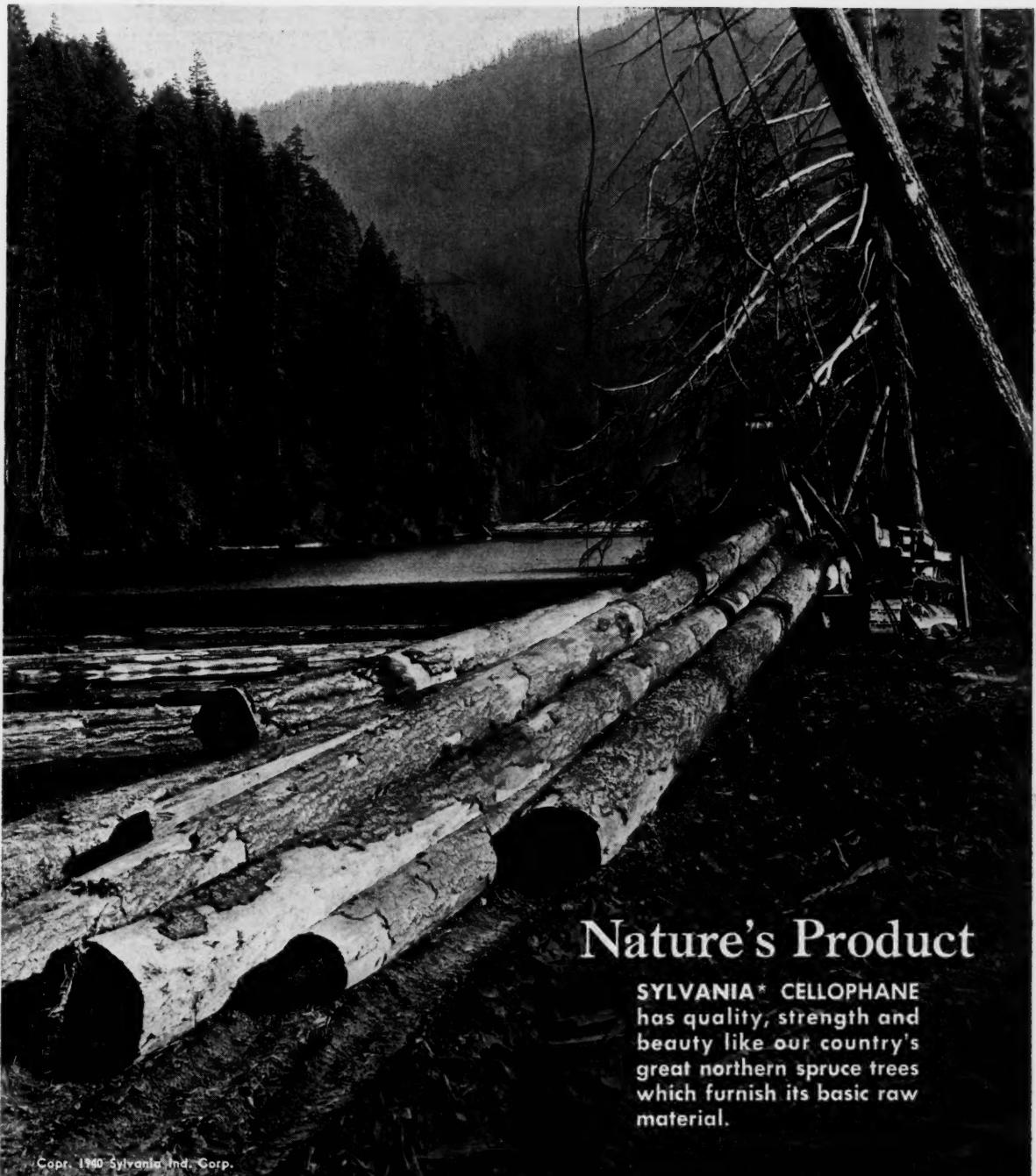


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has quality, strength and
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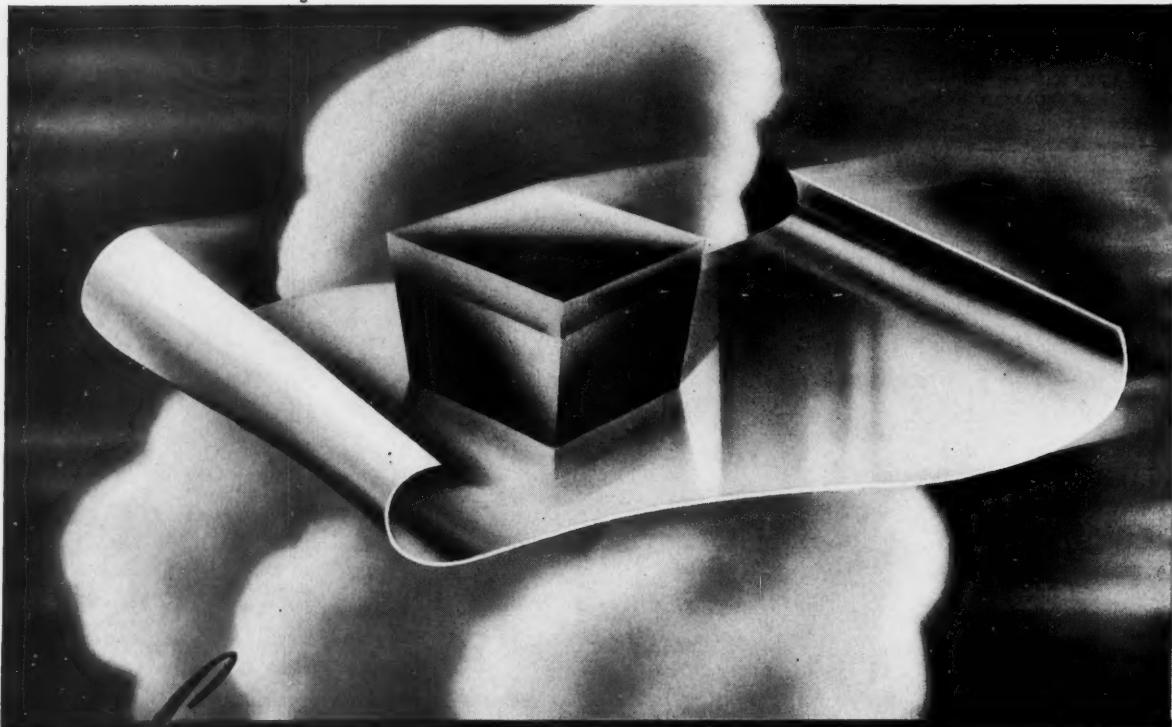
Pacific Coast:

Blake, Moffitt & Towne
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Canada:

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Toronto, Montreal, Halifax

*SYLVANIA IS A REGISTERED TRADE MARK FOR CELLOPHANE PRODUCTS MANUFACTURED BY SYLVANIA INDUSTRIAL CORPORATION



Let

METAL Carry Your Product to Market ... and benefit from metal's added sales appeal

Your product will take on a new importance when you send it to market packaged in a metal container made for you by Scovill.

Consider metal's advantages—new sales appeal, strength, lightness—and see if any products in your line would be better off in metal. Metal has the rich *glow* and *feel* that no other material has. Metal's strength gives greater protection in shipping (and suggests a re-use container). Metal's lightness-with-strength will often save the additional cost of heavy outer wrappings.

Consider aluminum, brass, nickel-silver—all-metal or combinations of metal and plastic, metal and wood. Consider Scovill's new and highly successful finishing processes—like satiny Indurited finish on aluminum which is moisture, heat and scratch-resistant.

Scovill, leading supplier of containers and closures for the drug and cosmetic manufacturers, offers wide experience in using metal for packages, expert facilities for development work, and high-production manufacturing equipment.

For the Scovill story, in more detail, write 25 Mill Street, Waterbury, Connecticut, mentioning the type of product you have in mind for packaging in metal.



Your Product Will Sell Better in a Scovill Metal Container

Boston, Providence, New York, Philadelphia, Syracuse, Pittsburgh, Detroit, Chicago, Cincinnati, San Francisco, Los Angeles
IN CANADA: 334 King Street, East, Toronto, Ontario

MODERN PACKAGING

AUGUST 1940 VOLUME 13 NUMBER 12

New technique for meat loaf wrapping

Heat-sealed sheet-wrap claimed to cut weight losses while increasing "keeping qualities"



1. Close-up view of one of Cudahy Brothers Company's Peacock brand Wonder Loaf packaged in the new casing. 2. Neatness, cleanliness and efficiency of the set-up used for packaging meat loaves in the new casings is illustrated graphically in this photograph, taken in the Cudahy Brothers Co. plant.

Development of a new type of meat loaf wrap, and a new process of applying it, is claimed to virtually eliminate losses in weight which formerly occurred between the time of packing and the moment when the butcher begins slicing the loaf for the customer. Prior to the introduction of the new development—currently in use by some 30 packing houses—an average shrinkage in weight of from 8 to 10 per cent is reported to have been common throughout the industry. After prolonged experimentation, the new type of wrap is now being extensively introduced into interstate commerce, with the full approval of the Bureau of Animal Industries inspection service.

The new method involves the use of rubber hydrochloride transparent sheeting, plain or printed, and may be of any desired size within the limits common to this industry. Also essential to the new technique is a new packaging machine or device, designed to facilitate

packing and to apply the all-important heat seals which complete the encasing operation.

Among the advantages claimed for the new casings are the following:

1. They cost less. They cost 30 to 40 per cent less than the heavyweight cellulose casings previously available and compare favorably in cost with the new lightweight casings of this type.
2. No increased labor cost is entailed in applying the new wraps.
3. The breakage of containers in production, it is claimed, is virtually eliminated.
4. "Keeping" qualities of the product is reported to be substantially increased. Tests, in which loaves protected by the new casings were held for eight weeks at 44 deg. and others, in which such loaves were held for three weeks at 72 deg., disclosed no development of mold or slime. Such tests would indicate the feasibility



3



4



5

of the product's use in export shipping. Wrappers in storage also will keep indefinitely, thus, it is stated, making economical large-volume purchases practical.

5. Cooked products do not darken and baked loaves do not bleach, it is stated. This is expected to make for substantially increased consumer appeal, as is the fact that the package itself stays dry and retains its sparkling fresh appearance.

6. The new wraps may be subjected to fine register process color printing, including pastels and metallics, thus opening up wide vistas for package decoration, the reproduction of trade marks, house insignias, identification, etc., on any part of the wrap. In contrast to tubular casings, the new wraps are printed flat, in letter-press style, and later formed to fit the loaf. Thus printing may be had on all four sides of the loaf if desired. As the wrap material does not shrink, loaves wrapped by the new method are not distorted from original shape by contraction. Odd-shaped loaves, glazed or fruit decorated hams and other such specialties, can be treated by the new process without additional effort and handled subsequently without inconvenience.

Two recent tests are cited as evidence of the improved production afforded by the new technique. Test No. 1, conducted at the plant of Cudahy Brothers Co., was carried on in a packing room cooler with temperature maintained at 40 deg. throughout the test. Two freshly made loaves were used. One, weighing 5 lbs., 8 $\frac{1}{2}$ oz., bore the new wrapper. The other, weighing 5 lbs., 9 oz., was inserted in another type of wrapper widely used for the purpose throughout the industry.

The test loaves then were placed side by side in the cooler and in no way disturbed for seven days. At the end of this period, the older-type wrapping was slimy, the loaf had turned a dark red, the package had lost its shape through contraction of the wrap and the scales revealed the package had lost exactly 9 oz. The loaf wrapped by the new method was perfectly dry, its color was indistinguishable from that of a freshly packaged loaf, original squareness of the loaf's cross section had



6

been retained and the weight loss was approximately only one-quarter of 1 oz.

Test No. 2 was conducted with two similarly packaged loaves. At the start, the loaf bearing the new type wrap weighed 5 lbs., 8 oz.; the other loaf weighed 5 lbs., 10 oz. The loaves were kept side by side in a room where the temperature averaged between 75 and 80 deg. for 90 hours. At the end of this period, both loaves were weighed. The rubber derivative wrapped loaf had lost $\frac{1}{2}$ oz. The other loaf had lost $8\frac{1}{2}$ oz. Both loaves then remained undisturbed for seven additional days. Inspection at conclusion of this phase of

the test hardly was necessary to determine that the contents of the one package definitely were spoiled and badly molded. The loaf packaged by the new method still retained its fresh appearance and was subjected to one further test. The wrapper was removed, the loaf was sliced down and employees of Cudahy Brothers Co. were invited to sample the result. The meat was tasty, appetizing and in fresh condition.

The second phase of the new development is found in a packaging device consisting basically of an assembly of four major parts, namely, base, adjustable plate, heat seal bar and thermostat. (Continued on page 104)

3. First step in the application of the new type wrap to the meat loaf. A single Pliofilm wrapper is placed in the packaging machine and squared up by the printed line showing packer's name and location. The operator holds the wrap in place, ready to receive the loaf. Jaws of the wrapping machine are adjustable for width through use of the brackets and thumb screw, shown in middle foreground. **4.** Second step. The wrapper is in place and second operator is dipping meat loaf into gelatin just prior to placing in wrapping machine. **5.** Third step. As the first operator holds the transparent sheet in place, second operator places gelatin-dipped loaf between jaws of the packaging machine, centering it between printed trade marks, visible in the illustration. **6.** Fourth step. After loaf has been placed on wrap between jaws of wrapping machine, the operator first folds over snugly the edge of the wrapper nearest her. Then the opposite edge of wrapper is lapped over and the package is "squared up" through aid of printed straight line. **7.** Fifth step. Immediately after edges of the wrap have been lapped over and squared, operator holds near edge of wrap down with one hand and with the other depresses electrically heated sealer bar into contact with wrapper to form heat seal. The sealer bar swivels through a perpendicular arc of several degrees to facilitate making contact entire length of loaf in cases where loaf's contour is not perfectly flat on bottom or sealing side. **8.** Sixth step. After heat seal is made, operator removes loaf from packaging machine by taking hold of loose wrap at each end. Note that loaf is packaged in upside-down position, so that top of loaf will be covered with clear printed brand, trade mark and descriptive captions, while seal is on bottom side. **9.** Seventh step. Loose wrap at each end of meat loaf package is twisted up snugly and tied with cotton cord.



Permeability of packaging materials

by H. V. CHURCHILL*

A study of the moisture-passing qualities of various plain and combined materials

Quality of product depends upon the nature and characteristics of materials and the mode of processing used by the manufacturer. It is important to both manufacturer and consumer that "freshness" be maintained until the material is purchased and used.

The laboratory has made valuable contributions to our knowledge of all types of packages, including tanks, drums, barrels, boxes, carboys, bags, bottles, tubes and many other types of containers. There is another type of package, however, which is important to both manufacturer and consumer—the package in which the consumer is supplied with his retail purchases of candy, gum, cheese, butter, tea, cigarettes and other necessities. These unit packages are responsible for the preservation of qualities that cause consumers to prefer one brand of goods to others.

There are a number of enemies of quality which

* Aluminum Research Laboratories

suitable packages should restrain. Among these are moisture changes, contamination and mechanical damage. For some products, protection against chemical changes caused by light is likewise essential. Therefore, the ideal package should be strong and impervious to moisture. If the package boasts the latter quality, it will be repellent to contamination. Needless to say, economic considerations, production considerations or merchandising factors may frequently call for a deliberate departure somewhat short of this ideal.

In the kind of packages we are particularly considering, which are used for candy, cigarettes, tea and other commodities, three typical materials are used—paper, cellulosic films and metal foils. All of these materials have won a well-deserved place in the field of packaging.

One of the principal differences observable in the three types of packaging materials—paper, cellulosic films and metal foils—lies in their relative perme-

TABLE 1
**SPECIFIC PERMEABILITY
OF PACKAGING MATERIALS**

Type of Packaging Material	Grams of moisture per 1000 sq. in. passing per 24 hours at 80°F with dry air on one side and moisture-saturated air on the other
Aluminum foil, .00035 in.	1.52
Aluminum foil, .00045 in.	1.31
Aluminum foil, .0007 in.	.064
Aluminum foil, lacquer-coated, .0005 in.	.19
Cellulose film, plain	324.
Cellulose film, lacquer-coated	2.3
Cellulose acetate film	258.
Cellulose acetate film, lacquer-coated	3.13
20-lb. glassine	334.
20-lb. glassine, waxed	6.
25-lb. alkali-proof paper	263.
25-lb. alkali-proof paper, waxed	2.9
25-lb. grease-proof paper	326.
30-lb. bleached sulphite bond	349.
Asphalt-coated paper	15.1
Asphalt and aluminum-coated paper	4.16
Lacquer and aluminum-coated paper	11.9

TABLE 2
**SPECIFIC PERMEABILITY OF
COMBINATION OF PACKAGING MATERIALS**

Type of Packaging Material	Grams of moisture per 1000 sq. in. passing per 24 hours at 80°F with dry air on one side and moisture-saturated air on the other
.00035-in. aluminum foil on waxed 25-lb. alkali-proof paper	1.02
.00035-in. aluminum foil on waxed 21-lb. glassine paper	1.85
.00035-in. aluminum foil on waxed 25-lb. grease-proof paper	.34
.00035-in. aluminum foil on cigarette bond paper	1.74
.00035-in. aluminum foil on cigarette bond and glassine	1.38
.00035-in. aluminum foil on cellulosic film, plain	.50
.00035-in. aluminum foil on cellulosic film, lacquer-coated	.58

ability to moisture. Moisture balance in packaged materials is of obvious importance. Dried-out cigarettes are a good example of quality impairment where moisture has been lost. Tablet candy turning to sugar is another good example of the effect of moisture change. Coincidental with moisture changes, bacterial or mold infection sometimes occurs which results in deterioration.

Packaged products vary in their behavior with regard to moisture pick-up or loss. Some pick up or lose moisture readily, others are not so sensitive. All materials, however, tend to reach a moisture content which is in equilibrium with the humidity of the atmosphere which surrounds them. By this we mean that if the humidity of the air is less than the equilibrium amount, materials will lose moisture; with higher humidities, they will gain moisture. Since air humidities vary widely, the only practical method, which has been found to maintain moisture in packaged materials at a desirable level, is to pack the material with the desired moisture content in a package which does not permit extensive loss or gain of moisture from the package interior during the package's reasonable life expectancy.

The laboratory has measured the moisture-proofing efficiencies of packaging materials themselves and with the materials in package form. Before discussing these tests, however, some details of packages should be mentioned. One important principle to bear in mind in package design is that the ratio of external surface to interior volume is an important factor in determining efficiency. This means that with smaller packages, there are more units of surface for each unit of goods packed and hence a better opportunity for moisture changes to occur. There are 6 sq. in. on the outside of a 1-in. cube and there are 24 sq. in. on the surface of a 2-in. cube. In the first case, there is 1 cu. in. of material and in the second case, there are 8 cu. in. In the first case, 1 cu. in. of material is affected by the moisture which passes through 6 sq. in. of surface, while in the second case, 1 cu. in. is affected by the moisture which passes through 3 sq. in. Thus it is to be expected that the rate of moisture change would be only one-half as great in the second case as it would be in the first.

The foregoing discussion is based on the assumption that the only path of moisture passage is through the surface. As a matter of fact, folds and seams, unless sealed, offer the best path for moisture to pass. The folds and seams on the two packages we are considering will be in the ratio of one to two. Hence in the first case, 1 cu. in. of material is affected by the moisture which passes through one unit of seam or fold, while in the second case, 8 cu. in. are affected by the moisture which passes through two units. In this latter case, 1 cu. in. of contents is affected by only one-quarter unit of seam. Hence in the hypothetical cases cited, we see that material packed in the 1-in. cube in comparison with that packed in the 2-in. cube would pick up, through surface permeation, two times

TABLE 3
MOISTURE PERMEABILITY OF STANDARD
AND MODIFIED CIGARETTE PACKAGES

Legend:

- B.P.—Bond paper, 35-lb.
- C.—Cellulosic film, lacquer-coated
- C.F.—Lead alloy foil, .0006 in.
- V.P.—Printed varnished paper wrapper
- A.F.—Aluminum foil, .00045 in.

Combinations	Comparable Rates of Moisture Passage
B.P. and V.P., unsealed	14.2
B.P. + C.F. and V.P., unsealed	11.47
B.P. + A.F. and V.P., unsealed	9.8
B.P. and V.P. and C.—C. sealed	6.11
B.P. + C.F. and V.P. and C.—C. sealed	4.54
B.P. + C.F. sealed and V.P.	3.63
B.P. + A.F. and V.P. and C.—C. sealed	3.06
B.P. and A.F. sealed, and V.P.	1.44

TABLE 4
PERCENTAGE WATER IN
PACKAGED CIGARETTES

Type of Cigarette Package	At Start of Test	After 30 Days Standing in Air at 80% Humidity
Standard package with foil under sealed cellulosic film jacket, lacquer- coated	12.45%	14.59%
Standard package with foil but no cellulosic jacket	10.25	20.40
Package with all foil seams and laps sealed with non- permeable wax but with no cellulosic jacket	12.68	13.67

as much moisture and through the seams and folds, four times as much moisture.

This emphasizes the role played by the permeability of the package material itself and the passage of moisture through seams and folds. It also shows that in smaller packages, the problem is more important than in large packages of the same material. A practical example of the importance of package size is shown in the following example: (*Continued on page 98*)



1-2. Action photograph in the making. Photographer Gjon Mili uses a second camera to catch himself and assistants making a photograph of a splashing stream of water.

1

2

Ultra high-speed photography

offers a new medium for display and package designers capable of dramatizing hitherto "uncatchable" qualities and situations

Display designers and producers have been quick to adopt each new major development in the graphic arts as these have approached. Lithography and gravure have found broad markets among display users. Photography was early appreciated as an effective means of enhancing the selling power of displays. Color photography has found perhaps its widest market among display producers who, striving for realism and startling effects, find it an ideal means of creating a convincing picturization of an idea.

Now a new photographic technique has been made available in the display field and is receiving the most serious consideration of major display users. Supplementing rather than replacing color photography, this new technique multiplies many fold the display designer's ability to achieve dramatic effects.

Known as ultra high-speed or stroboscopic photog-

raphy, the new process permits the camera to literally "arrest" action and to accurately report and reproduce it in color at speeds 2500 times as fast as those of ordinary flash bulb cameras.

The method, making possible such high speeds, was developed at the Massachusetts Institute of Technology by Professor Harold E. Edgerton and has been adopted by a number of experimenters as well as by several commercial photographers. While developed originally as part of a search for means of recording the travel of high-speed motor parts, the new photographic technique has numerous fields of application, not the least of which will be the display field. It has already been widely used for analyzing motion in industry and in sports and for study of human and animal movements too fast for the eye of the ordinary camera.

Literally hundreds of actions occurring around us in



The Forbes Lithograph Company, Boston,
lithographed this subject in four colors.

Gjon Mili, New York City, made the Kodachrome by
stroboscopic photography (1/30,000 second exposure).

BUBBLES! THOUSANDS OF THEM . . . STOPPED IN MOTION!

Here's an interesting application of this new high-speed photography as an aid in presenting, dramatically and conclusively, a definite product characteristic. Now, the eye can perceive and appreciate, through the medium of pictures and in the full glory of color, the sharp details and the scintillating brilliance of performance — of action such as the effervescent properties (bubble action) of Alka-Seltzer — as it is caught by the all-seeing eye of the camera, stopped in motion by stroboscopic photography and then reproduced with intimate fidelity.

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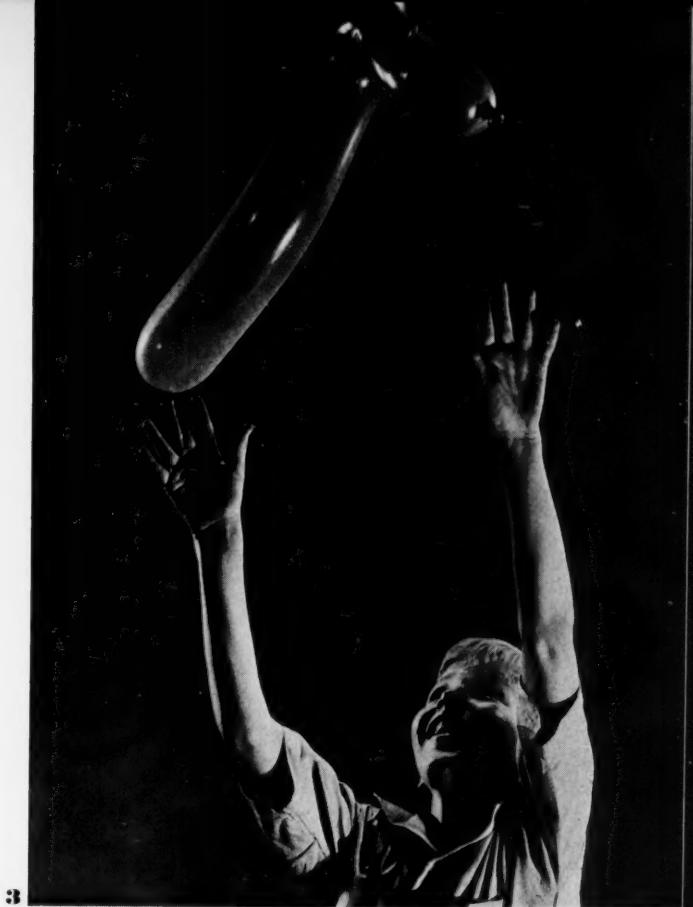
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every-day life occur too fast for the eye to see them—too fast for the ordinary camera to record them except as a blur. To take a single example, cited by Professor Edgerton, an ordinary camera with the shutter set at $\frac{1}{1000}$ of a second would photograph a traveling golf ball as a blur about 2 in. long. In order to produce a sharp, clear photograph of the ball, an exposure time of less than $\frac{1}{100,000}$ of a second is essential and no practical mechanical shutters are yet available to perform this task. A further problem has been that of obtaining sufficient light to expose the film in this unbelievably short interval of time.

The Edgerton solution of this joint problem has involved the discarding of shutters entirely and their replacement by electrical control of the illumination. The light is turned on only when a picture is to be exposed. In this respect, the method resembles that used with photo flash bulbs, except for the fact that the "flash" is as much as 2500 times shorter than that of the conventional flash bulb. In respect to camera equipment, the Edgerton system demands nothing of a

3. High-speed photography catches both the child's expression and the action of an unsealed balloon as escaping air twists it through space. 4. If it's bubbly soap you sell, here's a way to make the bubbles tell the story. All photographs by Gjon Mili.



3



4



5. Ultra high-speed photography is ideal for portraiture as well as for mechanical action shots. No other method would capture the fleeting expression found on this singer's face. 6. Ordinary camera methods are virtually useless for photographing rain, showers or other fast motion effects. Here the ultra high-speed camera catches every drop, plus facial expression and body action that tell the whole story of a shower in a single picture.

6



type not heretofore utilized for regular photography. Standard types of cameras can be used, their shutters being kept open and the shutter action being replaced by the light flash.

A single flash can be utilized to take a single "still" picture or a series of flashes can take either multiple exposure photographs or motion pictures. In either event, the light is produced by an electric spark, inside a gas-filled lamp, governed by electrical controls, making possible the accurate timing of both the flash and the intervals between flashes. Such timing can be held down to an interval as small as $1/1,000,000$ of a second.

One of the difficulties, which had to be overcome in developing the new process, was to control the flashing of the light at the right time. This control has been accomplished in a number of ways, each applicable to standard categories of situation. In some cases, a simple electrical contact is utilized. This is actuated by the moving object itself. In other instances, sound is used to activate a microphone which, in turn, trips the electrical circuit. In many other instances, a signal is produced by interruption of the beam of light from a photo-electric cell.

It will be seen from examining the photographs which illustrate this article that a number of types of motion recording have already been developed. Each might well be utilized to meet certain situations in the display field. Single still shots, in which motion is arrested, might be utilized both to provide highly dramatic illustrations (dancers, athletes, facial contortions, etc.) and graphic illustrations showing effects of motion which the eye cannot see (how the kick distorts the football, how the club flattens the golf ball, etc.).

Multiple exposure photographs may be used wher-

ever a demonstration of measurement or analysis is desired. They have, for instance, already been widely used in analyzing athletes and motions and many a professional golfer is today giving his lessons with the aid of photographs of this sort.

Frequently both types of ultra high-speed photographs can be utilized to uncover hidden dramatic effects and angles related to the product being advertised in a display. The direct color photograph which illustrates this article is a prime example of this sort of use of the new technique.

Specifications for the package purchaser

by H. B. COATS, Ph.D.*

How The Upjohn Co. has set up a Package Material Specification System and how it has profited thereby

The packaging side of industry, including user and supplier, is vitally interested in the continued improvement of packaging materials. A means of furthering the improvement in packaging materials is afforded through user and supplier working together, using the written detailed specification as the medium of pooling their knowledge and experience. The beneficial results that accrue have been demonstrated by the program of writing detailed specifications for all items of packaging material at The Upjohn Co. This program was undertaken as part of a revised method of handling packaging orders in the Production Department. However, it became apparent, as the work of writing specifications progressed, that the detailed

* The Upjohn Co.

written specification had more value in packaging than the mere recording of descriptions. It is the purpose of this article to enlarge upon these benefits.

Specifications are highly technical matters requiring the best efforts of the technical men of both user and supplier. Improvements in materials evolve from the questions and suggestions that almost automatically arise from the minute consideration of the material that is required for developing complete specifications. As an example, the consideration of the specifications for the molded cap of a collapsible tin tube brought up the question, "Why shouldn't the liner in this cap be glued in just as is specified for a bottle cap?" The result was a glued-in liner with considerable improvement in the utility of the cap. (*Continued on page 100*)

Typical packaging material specification as used by The Upjohn Co. Note the manner in which data is organized for ready reference to any specific characteristic. The guiding principle is "specify those characteristics in kind and quantity that distinguish the acceptable material from the undesirable material."

PACKAGING MATERIAL SPECIFICATIONS
of
THE UPJOHN COMPANY

Material: CAP
24 mm - GCA 400 Black Plastic,
Vinylite liner. Part No. C76P24V

Date: June 17, 1940

Copies to:

Specifications:

1. Style:- #12 fluted design.
2. Material:- General Plastics Durex #3977.
3. Color:- Black.
4. Size:- 24 mm - GCA 400.
5. Decoration:- Side decoration only. Plain top.
6. Liner:- Pulp backing with unwaxed vinylite facing.
Liner glued in place.
7. Dimensions:-
Outside diameter:- 1.094"
Inside diameter:- 0.953"
Inside depth:- 0.40"
8. Torque Test:- 35 inch pounds.
9. Packing:- 4 sub-packets of approximately 1000 caps each.

Source of Supply:-
This Sheet Supersedes:- C51P24V - May 6, 1940

By:- H.B.C.
Approval:- A.J.C.

Twenty Years' Improvement In P

TYPE OF INK	PRINTING PROCESSES IN COMMON USE		MAXIMUM PRESS SPEED ¹ REV. PEP. HR. OR FT. PER MIN.		TYPES OF INK IN COMMON USE		TIME REQ. DRYING OLD
	OLD	NEW	OLD	NEW	OLD	NEW	
Metal lithography.	Sheet-fed offset.	Sheet-fed offset. Pre-formed container printing. Offset gravure.	1500 R.P.H.	3500 R.P.H.	Straight litho varnish vehicle inks	Natural and synthetic resin vehicles with tung perilla and linseed oils and heat-set inks	20-30 min. bake at 250° F.
Paper lithography. No coated papers used prior to 15 years ago.	Sheet-fed offset.	Sheet-fed and web-fed offset.	1800 R.P.H.	4500 R.P.H.	Straight litho varnish vehicles	Natural and synthetic resin with tung, perilla and linseed oils and heat-set inks	12 to 24 hours Coated paper backed out between impressions.
Coated carton and patent coated board.	Sheet-fed letterpress.	Sheet and web-fed letterpress.	1000 R.P.H. sheet-fed.	2600 R.P.H. sheet-fed. 6000 R.P.H. web-fed.	Linseed oil and natural resin vehicles	Natural and synthetic resins with tung, perilla and linseed oils. Aniline and heat-set inks.	8 to 24 hours
Fibre board and corrugated carton stocks.	Sheet-fed letterpress.	Sheet-fed letterpress.	900 R.P.H.	2400 R.P.H.	Linseed oil and natural resin vehicles	Natural and synthetic resins with tung, perilla and linseed oil vehicles. Aniline inks.	8 to 24 hours
Label stocks gummed, C.I.S. and gloss.	Sheet and web letterpress. (See offset paper lithographing also.)	Sheet and web letterpress and rotogravure.	1800 R.P.H.	4500 R.P.H. sheet-fed. 900 Ft. per min. rotogravure.	Linseed oil and natural resin vehicles	Natural and synthetic resins with tung, perilla and linseed oil vehicles. heat-set inks. Rotogravure.	8 to 24 hours
Functional papers. Moisture-vapor proof cellophane, glassine, and glazed stocks, laminated foil stocks.	Sheet and web letterpress.	Sheet-fed and web-fed letterpress, rotogravure and aniline ptg.	1000 R.P.H. and only glassine available.	2000 R.P.H. sheet-fed. 1600 feet per min. rotogravure	Linseed oil and natural resin vehicles	Natural and synthetic resins with tung, perilla and linseed oil vehicles. Aniline, rotogravure and heat-set ink.	12 to 24 hours

Recent developments in package inks

by WILLIAM F. TALBOT*

The vast amount of laboratory and development work on the part of both the printing ink manufacturer and the supply industries related to printing ink, aimed at producing inks suitable for new and changing package designs, has generally gone unnoticed. Since ink plays such an important part in the finished package, it is well for the designer and purchaser of packages to follow, at least in a general manner, the advances and contributions of this Cinderella of the packaging art.

It is well to recognize at once that much of the advancement in ink has been in the nature of unspectacular, minor, stepwise improvements. This is, of course, true of many of the improvements in any art and this

sort of gradual change has been going on in all the supply industries related to packaging. In the case of ink making, however, it is not possible to point to any major radical development comparable in effect on packaging to the development of cellophane or the introduction of automatic packaging machinery. There are, on the other hand, a few cases where ink contributions have been outstanding.

Functional Use of Paper

Up until fairly recently paper and paper products, while freely used in packaging, have contributed very little to the protection of the contents except against such casual invaders as dust and dirt. For protection against gain or loss of moisture, insect invasion or

* Research Director, General Printing Ink Corp.

In Package Printing

USE	TIME REQUIRED FOR COMPLETE DRYING OF IMPRESSIONS		LAPSE OF TIME REQUIRED BEFORE FINAL PROCESSING		ADHESION AND SCUFF RESISTANCE		VARIETY OF COLOR AVAILABLE AND SUITABLE		FINISH	
	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW	OLD	NEW
Synthetic tung oils and heat-set	20-30 min. bake at 250° F.	3 to 10 min. bake at 240° F. to 320° F. for synthetics. Almost in- stantaneous for heat- set type.	7 to 14 days.	1 to 12 hours.	Barely ade- quate	Excellent	Limited to only a few and those not of good brilliance	Comparatively complete range of strong bright colors.	Poor	Excellent
Synthetic perilla and heat-set	12 to 24 hours. Coated paper racked out between im- pressions.	3 to 8 hours for synthetic and ordinary inks. In- stantaneous for heat-set types.	24 to 72 hours	24 hours	Fair	Good although need remains for improvement in scratch and rub resistance	Somewhat limited	Fairly adequate range.	Poor	Good
Synthetic perilla Aniline	8 to 24 hours	Instantaneous for heat- set and aniline inks. 6 to 10 hours for synthetics.	24 to 72 hours	Instantly for aniline and heat-set to 12 hours for synthetics.	Fair	Good although need remains for further improve- ment in scratch and rub resist- ance	Restricted in clean greenish blue range	Adequate	Poor	Excellent
Synthetic perilla vehicles.	8 to 24 hours	Instantaneous for aniline inks. 6 to 12 hours for more ordinary ones.	24 to 72 hours	Instantly for aniline. 6 to 12 hours for syn- thetics.	Fair	Good although further improve- ment is needed	Somewhat limited	Fairly adequate	Fair	Excellent
Synthetic perilla vehicles. Rotogravure	8 to 24 hours	Almost instantaneous for heat-set and rotogravure 6 to 12 hours for syn- thetics.	12 to 72 hours	Instant to 24 hours.	Fair	Good although further improve- ment needed	Fair	Good	Fair	Excellent
Synthetic perilla vehicles. re and	12 to 24 hours	Instantaneous for heat- set aniline and roto- gravure. 6 to 12 hours others.	12 to 36 hours	Instantaneous to 12 hours.	Fair	Good although improvement is needed	Good	Comparatively complete range	Fair	Excellent

flavor contamination, paper was at a disadvantage although it is true that exceptions to this statement might be taken in the case of the waxed papers, particularly waxed glassine.

The introduction of special paper lacquers and hot melt coatings, possessing a high degree of resistance to moisture-vapor transmission as well as resistance to creasing and folding plus advantages of heat sealing, opened a whole new field of packaging endeavor. Closely related to this development was the use of metal foils laminated to paper which had long been known, but whose functional use had not been widely appreciated. Of course, one must not overlook the transparent sheet materials whose introduction gave impetus to functional uses of sheet wrapping materials.

All of these developments introduced new ink problems of varying degrees of complexity. In many cases, inks which have long been known function satisfactorily when lacquers or hot melt coatings are applied for protection purposes. In other cases, however, inks of special properties were required in order to secure satisfactory adhesion and to avoid the problems of

bleeding and damage to the printed surface during the subsequent operations. From an ink standpoint, the latest development in this field is the introduction of inks which in themselves have protective properties, particularly in respect to moisture-vapor transmission and which therefore take a portion of the load formerly borne entirely by the protective coating.

Many packages carry practically all-over printed designs. While ordinary inks do improve the surface of paper for lacquer reception, they contribute little or nothing to moisture-vapor-proofness. Recently inks have been developed, particularly for rotogravure application, based on moisture-proof formulations. While printing with these inks will not in itself contribute a sufficient degree of protection for most uses, they do add to the protection gained through use of lacquers.

Cartons

Carton printing, only a relatively short time ago, resulted in a package which, when compared with a tight-wrap package where better stocks were used, left a good deal to be desired. Aside from improvements in carton stocks, there have been recent changes in carton inks with decided advantages to carton printing. Carton inks have been improved in their (*Continued on page 95*)

¹ Because of variations in printing conditions, there was no uniform agreement among production men consulted concerning press speeds. The figures given are at the best approximations. In respect to the old speeds, the highest speeds in at all common use have been given in each case.

How humidity affects paperboard

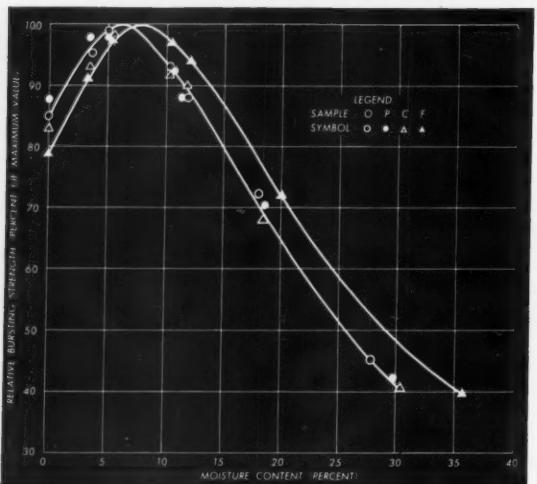
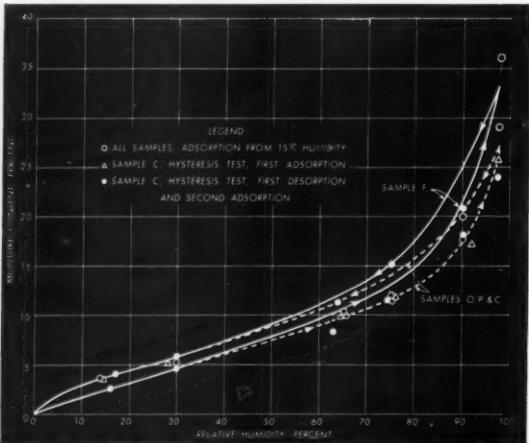
by E. A. THROCKMORTON*

It may not be the box that's wrong—
it's probably the way you store it

All paper is hygroscopic. This means that all paper will accept and give off moisture. There is not very much difference between different grades of paper and board and they are all affected very considerably. No sizing has any effect except to retard somewhat the absorption of moisture, but this retarding effect is very nominal.

Chart 1 shows the moisture content of four container boards at different relative humidities. The dotted lines indicate the moisture content of three jute boards, which are all practically identical, at different relative humidities, while the solid line represents the moisture

* General manager, sales promotion department, Container Corp. of America.



content of Fourdrinier board. It will be noticed that Fourdrinier kraft liner is somewhat more hygroscopic than jute liner. That is, it absorbs more moisture when the relative humidity increases over 30 per cent. The reason there are double lines indicated is because of the phenomenon known as hysteresis. This is due to the fact that paper will contain more moisture at the same relative humidity when moving from wet to dry than when moving from dry to wet. Thus to accurately estimate the moisture content of a board from previous data at a certain relative humidity, one would have to know the immediately preceding history of the sample. However, for all practical purposes, the hysteresis lines are very close together. Thus, for example, a jute board at 80 per cent relative humidity would have between about 16 per cent and 18 per cent moisture in it, depending on whether the sample had recently been very much drier or very much wetter.

The important thing to know and remember here is that any liner board, and this will be true of box board also, may contain well over 25 per cent moisture at a relative humidity of 95 per cent or more and as little as 2 per cent or 3 per cent moisture at a relative humidity of 10 per cent. Relative humidity in a heated room often descends as low as 10 per cent, while outdoors it will vary from 20 per cent to 100 per cent, although 90 per cent is a more usual maximum.

Chart 2 indicates the relative Mullen test in per cent of maximum value for the same container boards. Note that both jute and kraft board are affected in approximately the same degree and that both lose about 50 per cent of their test value or more when the moisture content exceeds 25 per cent and that they lose to a lesser degree under very dry conditions. The only difference between the two is that jute boards reach their maximum test at about 6 per cent moisture content and kraft boards similar to the sample at approximately 7½ per cent.

Chart 3 shows the variation in physical properties on the average for all types of papers and boards at different relative humidities or moisture contents. In this chart, 65 per cent relative humidity has been taken as standard. Curves have been drawn to show the increase or decrease in various tests with more moisture or less moisture. The Mullen test is shown again. Although this was noted on the preceding chart, note that the tensile strength (Scott test) follows a similar curve.

(Continued on page 94)

Announcing The 10TH ANNUAL



ALL-AMERICA PACKAGE COMPETITION

Although 1940 still has five months to run, it has already proved to be an outstanding year in package development—a year which has seen many earlier plans and projects come to fruition in the form of new packages new materials, new processes and new machine installations.

In announcing the All-America Package Competition for 1940, the publishers of Modern Packaging are fully appreciative of the increased burden of responsibility which this mounting tempo of development places upon the sponsors of the Competition and upon the board of judges. Every indication points to an even greater number of entries than in the previous record year of 1939. Beyond the question of mere numbers, the judges' task for 1940 will no doubt be more difficult than ever before because of the high general level of accomplishment which characterizes the more recent package developments.

Anticipating this problem, Modern Packaging is proud to introduce a board of judges fully qualified to meet the difficult task ahead of them efficiently and in a manner which will lend the greatest significance to their awards. As in the past, the board of judges are both independent and representative. Independent of any outside influence, they serve without fee and with complete freedom of choice. Representative of art, industry, merchandising and the consumer, their joint judgment will truly reflect the worth of the award winners from a complete and rounded viewpoint.

The principle of unrestricted entry—which has characterized all previous All-America Package Competitions—will be maintained. Cordial invitation is extended to all those connected with the creation of new packages, new displays and new machinery installations to make entry, without charge or fee and without restriction as to the number of such entries.

No basic changes have been made in the classification groupings utilized last year. The sponsors of the Competition and the judges, however, reserve the right to set up special classifications and allot additional awards should the character of entries indicate the desirability of this step.



Barbara Daly Anderson



William M. Bristol, Jr.



Henry Dreyfuss



James M. Mathes

JUDGES OF THE 1940 ALL-AMERICA PACKAGE COMPETITION

Barbara Daly Anderson, director of the Parents' Magazine Consumer Service Bureau, is an alumna of the University of Toronto whose degree in Home Economics qualified her for a position as graduate dietitian of the Peter Bent Brigham Hospital of Boston. She was formerly assistant woman's editor of Country Home Magazine and has written a syndicated weekly column for the American Press Association.

William M. Bristol, Jr. has once again been persuaded to serve as chairman of the board of judges, a duty for which he is qualified not only by the longest record of experience of any of the judges, but also by his activities as vice president of the Bristol-Myers Co. and as president of the Packaging Institute. His experiences in the production ends of packaging qualify him as an outstanding expert in the field.

Henry Dreyfuss has achieved fame as a designer of stage settings, a field to which he still occasionally returns. From backstage he extended his activities to the audience section of theatres as art consultant for the R.K.O. chain. From this he moved on to industrial design, a field in which he has attained top-flight prominence as designer of such varied products as alarm clocks, washing machines, telegraph instruments, vacuum cleaners, trains and typewriters.

James M. Mathes is president of one of the country's largest advertising agencies, having served his apprenticeship in advertising with N. W. Ayer & Son in which firm he rose to the position of senior vice president. His general qualifications as a judge of the advertising aspects of packaging and display are strengthened by specific experiences with the packaging activities of a number of his clients.

George R. Webber rivals Bill Bristol in his ability to take the punishment of an All-America judging expedition. In his many years of service on the board, he has demonstrated repeatedly his objectivity, his thorough knowledge of every phase of packaging and his unusual ability to ferret out both the advantages and the disadvantages of every package placed before him. Mr. Webber is in charge of all package development activities for Standard Brands and is a director of the Packaging Institute. Through his varied activities, he has become recognized as one of the foremost technical and production experts in the packaging industries.



George R. Webber



The 1940
ALL-AMERICA PACKAGE COMPETITION

Sponsored by MODERN PACKAGING Magazine

Entries Must Be Received by January 6, 1941
BRESKIN PUBLISHING CORPORATION
CHANIN BUILDING, 122 EAST 42nd STREET, NEW YORK, N. Y.

Entry Blank

MAKE CERTAIN OF THE CLASSIFICATION OF YOUR ENTRY

It should be clearly understood that these classifications are made as a means of group division and to facilitate judging. Each entry will be judged in its entirety, taking into consideration all of the inherent factors which determine its ability to promote the sale of merchandise.

If you have any doubts as to the classification of your package or packages, use this guide before filling in the entry blank on the opposite page. There are twenty groupings. Unless you enter your package in the proper group, judgment will be hampered and the possibility of its receiving an award greatly limited.

1. **Folding Cartons**—All types of folding paper or boxboard packages, except those used primarily as shipping containers.

2. **Collapsible Tubes**—Metal tubes only. (Rigid transparent tubes should be included under classification 19.)

3. **Fibre Cans**—All fibre-bodied cans, whether using fibre or other types of tops, bottoms or closures.

4. **Glass Containers**—Bottles, jars, vials and other types consisting primarily of glass.

5. **Metal Containers**—Cans and boxes, whether plain or lithographed, if used primarily as containers.

(Metal Displays, see Nos. 10-11-12.)

6. **Set-up Paper Boxes**—All non-collapsible types of paper boxes, including cloth and fabric covered boxes, primarily made as paper boxes.

7. **Plastic Containers**—All containers primarily made of molded or cast plastics and primarily used as containers.

(Plastic Displays, see Nos. 10-11-12.)

8. **Machinery and Equipment, Class A**—Best individual machines designed, or redesigned, and installed during 1940. Submit detailed floor plans, photographs of installation and samples of package and production figures.

9. **Machinery and Equipment, Class B**—Best production lines installed during 1940. Submit detailed floor plans, photographs of installation and samples of package and production figures.

10. **Counter or Shelf Displays** Irrespective of material or type if primarily designed for use indicated.

11. **Floor Displays**—Irrespective of type or material if primarily designed for use indicated.

12. **Window Displays**—Irrespective of type or material used if developed primarily for window display.

13. **Shipping Containers**—Irrespective of type or material used if designed primarily as a shipping container. Includes corrugated and solid fibre boxes, wooden boxes, paper and fabric shipping bags, etc.

14. **Family Group**—Groups of three or more packages bearing a close family relationship in design or branding. Includes only groups using various types of containers utilizing two or more different materials—i.e., a range of related cartons only would fall under No. 1.

15. **Wraps, Bags and Envelopes, Opaque**—All non-transparent wraps, bags and envelopes except those used primarily as bulk shipping containers.

16. **Wraps, Bags and Envelopes, Transparent**—All transparent wraps, bags and envelopes.

17. **Labels and Seals**—Types used for standard cans or bottles. If container is of a special design, enter package under one of the container groups.

18. **Closures**—Special design closures for specific purposes should be entered here. Does not include standard stock type closure.

19. **Rigid Transparent Containers (other than glass)**—Containers primarily of rigid transparent sheeting.

20. **Miscellaneous Containers**—Classification not included elsewhere, but try to find a suitable division first.

Read Carefully Before Filling Out Blank

ENTRY BLANK MUST BE ENCLOSED WITH ENTRY

WHAT MAY BE ENTERED: Any package, display or package machinery installation which was placed on the market during the calendar year 1940.

WHO MAY MAKE ENTRY: Entry in the All-America Competition is open to all package-using firms, designers, package suppliers, machinery manufacturers, and to others responsible for the creation of the package or display which is entered.

NO ENTRY FEE: There is no entry fee. All packages must be submitted complete with merchandise. Packages and contents remain the property of Modern Packaging Magazine, to be placed on exhibit at the Permanent Packing Exhibit Hall, 122 E. 42nd St., New York City.

CLOSING DATE: All entries must be in our offices not later than January 6, 1941, regardless of the post-marked date.

NUMBER OF ENTRIES: Any number of different packages, displays or machinery installations may be submitted by any firm or individual.

ONE BLANK PER ENTRY: If you are planning to enter more than one package or display, write now to Modern Packaging for additional entry blanks. (If a group of packages are entered as a single family, use only one blank—see explanation in classification 14 below.)

FULL INFORMATION: No entry will be accepted for judgment unless accompanied by a completely filled out and detailed entry blank.

WINNERS TO BE ANNOUNCED in the March, 1941, issue of Modern Packaging Magazine. Awards will be presented, in accordance with plans to be announced, at that time.



FROM _____

TO ALL-AMERICA PACKAGE COMPETITION

CHANIN BUILDING, 122 E. 42nd STREET
NEW YORK, N. Y.

The attached label is
for your convenience.
Please fill out with re-
turn address and use as
a shipping label.



1940 ALL-AMERICA PACKAGE COMPETITION

Sponsored by Modern Packaging Magazine

CHANIN BUILDING, 122 E. 42nd Street, New York, N. Y.

8. MUST BE FILLED IN. Place in the space below, a summary of the package's history, of approximately 200 words, in which will be stated the objectives of the submitted package, what was sought and how accomplished, with, if possible, a statement of the sales resulting from the adoption of the package.

TEAR HERE

Enclose This Blank With Your Entry — DO NOT MAIL SEPARATELY

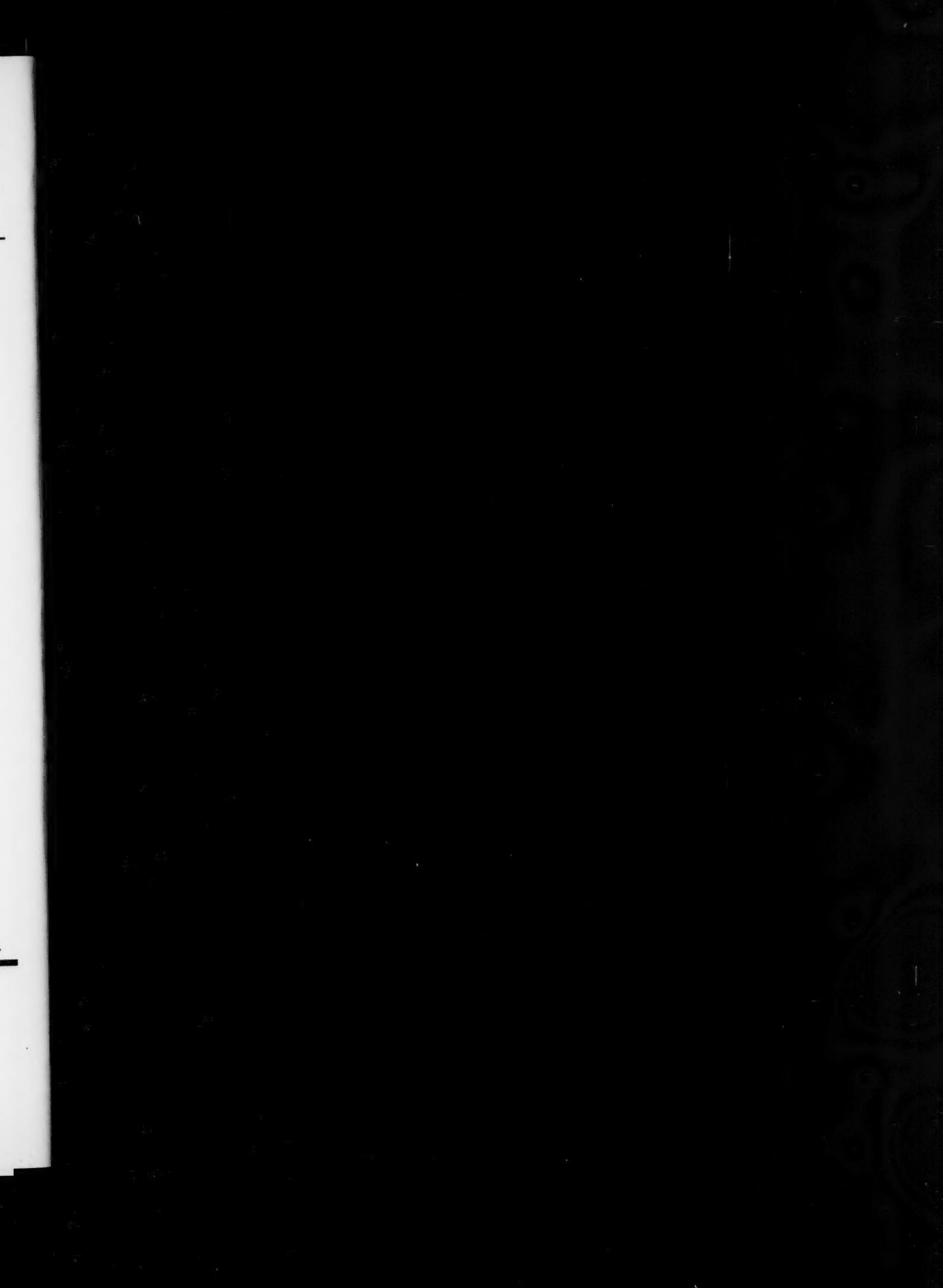
PRINTED IN U.S.A.

SUBMITTED BY (Give Company Name).....

Individual Handling Entry.....

Address.....

Date.....





● ***It Started in 1931*** with 271 entries, twelve prize winners. It has grown each year, the number of packages and displays entered in the last competition being over 30,000.

● ***Who Sponsors It?*** The Competition has, since its inception, been under the sponsorship of Modern Packaging which underwrites all expenses involved in the classification of entries, the judging of the winners, the publicizing of the awards, the traveling exhibits of the winning packages, the sound and color motion pictures, the cost of awards, etc.

● ***Who Judges It?*** A board of judges representative of the viewpoint of consumers, advertisers, designers, packagers, etc., who serve without compensation and work without restriction. See the previous page for biographies of the 1940 judges.

● ***Who May Enter?*** Entry is open to all designers, package suppliers, machinery manufacturers, package-using firms and others responsible for the creation of the package or display.

● ***What May Be Entered?*** Any type of package, display or illustration of packaging machinery installation which reached the market (or entered production) during the calendar year 1940.

● ***Any Restriction on Entries?*** Any firm or individual may enter any number of packages, displays or machinery lines under the single limitation mentioned above.

● ***What Rewards for the Winners?*** First: the All-America award trophies—three awards being given in each of the 20 divisions. Second: a distinction which most prize winners have capitalized—to both consumers and dealers—via every possible advertising channel. Third: publicity for product and maker through articles and pictures in hundreds of journals, newspapers, moving pictures, traveling exhibits, etc.

● ***Are There Any Charges?*** There is no entry fee nor any other charge whatsoever upon either entrants or prize winners. All expenses are borne by the sponsors, Modern Packaging.

● ***How Are Entries Made?*** Via the entry blank to be found in this issue of Modern Packaging. One blank required for each entry. Additional blanks may be secured on request.

● ***When Does the Contest Close?*** Last day for entries is January 6, 1941. Judging takes place immediately thereafter. Announcement of the awards will be made in the March, 1941, issue of Modern Packaging.

Fungicides for package papers

by D. K. BALLMAN*

Much of the research work that has been conducted in the paper packaging industry in recent years has had as its ultimate aim the development of greater utility and greater beauty of the package. That this work has been very successful is evidenced by the fact that paper products are finding an ever-growing usage in diversified fields.

It is, however, recognized that under certain conditions of storage, paper products are not entirely satisfactory. Conditions that cause high moisture content in paper often result in disfiguration, possible strength loss and a lowering of the value of the packaged material, inasmuch as paper, being a cellulose product, becomes very susceptible to mold growth when its moisture content is sufficiently high. High moisture content in the paper may be induced by either of two conditions: From the material in the package or from the atmosphere in which the package is stored. This problem is also often accentuated when other materials such as starch, glue, casein, etc., are used in or on the paper to produce the finished package.

It has been our experience that since both the packaged materials and the conditions of storage will vary widely, the control of mold growth on each type of

package must be dealt with as an individual problem. Likewise, experience with these varied problems has demonstrated that no one fungicide will satisfy all the conditions that may be encountered. It is for this reason that the group of chemicals known to the trade as "Dowicides" may be utilized for the solution to such problems, since they possess a wide range of physical and fungicidal characteristics.

Fig. 1 gives the fungicidal values of several of the Dowicides against some of the common organisms.

Fig. 2 illustrates the vapor pressure of several of these fungicides.

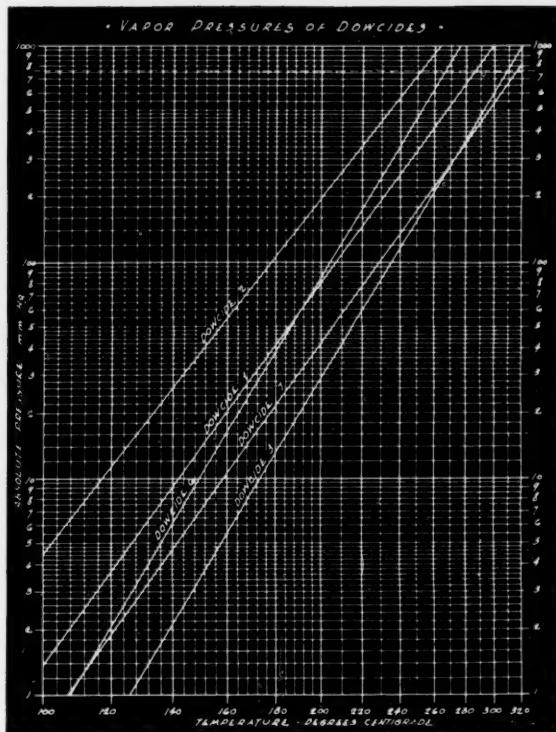
It should be mentioned that vapor pressure, as well as fungicidal efficiency of a chemical, must be considered in the solution of some mold problems. Various considerations governing this point will be given later in greater detail.

One of the most interesting developments in the use of fungicides in the packaging industry has been the prevention of mold growth on eggs in cold storage by treatment of the fillers and flats. Ideal conditions for storage of eggs require high humidity in order to prevent dehydration of the eggs. Under such conditions, mold spores which are always present on the egg readily germinate and will result in loss of market value or

* Dowicide Division, The Dow Chemical Co.

FIGURE I: FUNGICIDAL VALUES OF THE DOWICIDES

		Rhizopus nigricans, Per cent.	Aspergillus Cherni (No. 29), Per cent	Rhizoctonia solani, Per cent	Chaelomium globosum, Per cent	Hormiscus gelatinosum, Per cent	Fomes annosus (F.P.L. No. 517), Per cent
Dowicide I Orthophenylphenol	Inhi.	0.015-0.020	0.0025-0.005	0.001-0.002	0.0025-0.005	0.005-0.010	0.005-0.01
	Kill.	0.015-0.025	0.020-0.050	0.0035-0.005	0.005-0.010	0.01-0.02	0.01-0.02
Dowicide II 2-4-5-Trichlorphenol	Inhi.	0.0035-0.005	0.0005-0.001	0.00035-0.0005	0.00075-0.0015	0.0010-0.0025	0.0007-0.001
	Kill.	0.005-0.01	0.0025-0.005	0.00035-0.0005	0.002-0.0035	0.001-0.0025	0.0007-0.001
Sym. Trichlorphenol 2-4-6Trichlorphenol	Inhi.	0.01-0.02	0.0005-0.001	0.0005-0.001	0.0005-0.001	0.001-0.0025	0.001-0.002
	Kill.	0.01-0.02		0.0005-0.001	0.0025-0.005	0.0025-0.0035	0.0035-0.005
Dowicide III 2 Chlor 6 Phenylphenol	Inhi.	0.015-0.025	0.002-0.005	0.001-0.002	0.001-0.002	0.0075-0.01	0.005-0.01
	Kill.	0.025-0.035	0.02-0.035	0.001-0.002	0.002-0.0035	0.01-0.02	0.005-0.01
Dowicide IV 2 Chlor 4 Phenylphenol	Inhi.	0.035-0.05		0.001-0.002	0.0050-0.0075		0.005-0.01
	Kill.	0.035-0.05		0.001-0.002	0.005-0.0075		0.005-0.01
Dowicide V 2 Brom 4 Phenylphenol	Inhi.	0.20-0.35		0.002-0.005	0.01-0.025		0.025-0.05
	Kill.	0.20-0.35		0.002-0.005	0.05-0.1		0.025-0.05
Dowicide VI Tetrachlorphenol	Inhi.	0.005-0.0075	0.001-0.0025	0.0003-0.005	0.0010-0.0025	0.0035-0.005	0.002-0.0035
	Kill.	0.005-0.0075	0.01-0.02	0.0005-0.001	0.001-0.0025	0.0035-0.005	0.002-0.0035
Dowicide VII Pentachlorphenol	Inhi.	0.035-0.05	0.001-0.0025	0.001-0.002	0.002-0.0035	0.0075-0.01	0.0001-0.002
	Kill.	0.035-0.05	0.010-0.025	0.001-0.002	0.002-0.0035	0.01-0.02	0.002-0.0035

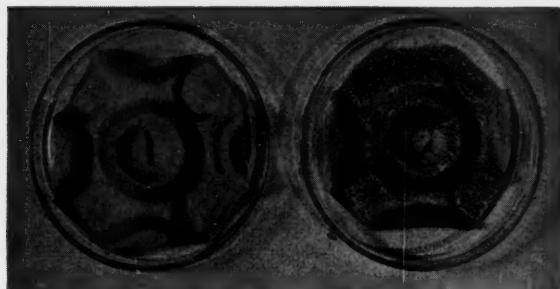


2. Chart shows vapor pressure of a group of the fungicides discussed in this text.

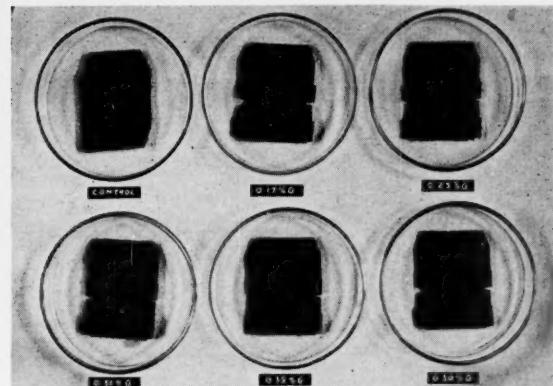
complete destruction of the egg. If the egg case fillers and flats are treated so as to retain approximately 0.4 per cent Dowicide G (Sodium Pentachlorophenate), control of fungi in the egg will be obtained. In this use, the fungicidal effect is dependent on the mycostatic vapors supplied by the presence of the Dowicide G in the fillers and flats. It is necessary that the fungicide used possess an extremely low vapor pressure to insure permanence of the treatment. It is also necessary that the efficiency of the material as a mycostat be so great that relatively low concentrations will give control without imparting either odor or taste to the eggs. See Fig. 3.

The series of photographs in Fig. 4 illustrate the degree of mold resistance to be obtained by different concentrations of Dowicide G.

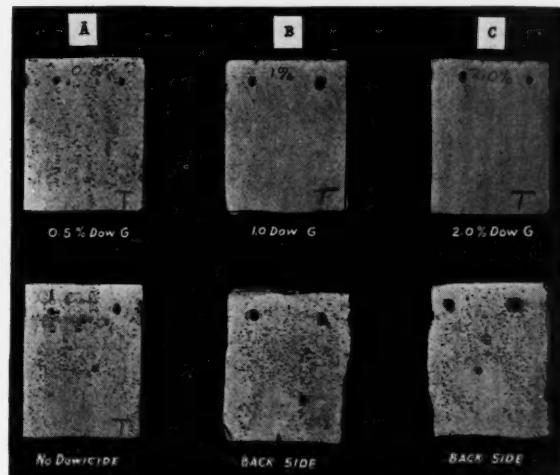
By the use of fungicides available today any paper product can be made mold resistant. The application of a fungicide to the stock in the beater or at the calender stacks has been found most satisfactory. Another treatment which is not ordinarily as effective as beater or calender application, but which provides sufficient mold resistance for average exposure, is one that is applicable to laminated and corrugated board. This involves the addition of Dowicide G to the adhesives employed. It has been observed that in both lamination and corrugation, the adhesives used wet the board to which they are applied. By adding a water soluble fungicide in sufficient quantity to the adhesive solution, it has been found that the fungicide will be carried into the board by the wetting action of



3. Treated and untreated egg case fillers photographed after 70 days in humidity chamber.



4. Showing various degrees of mold resistance obtained by different concentrations of Dowicide G.

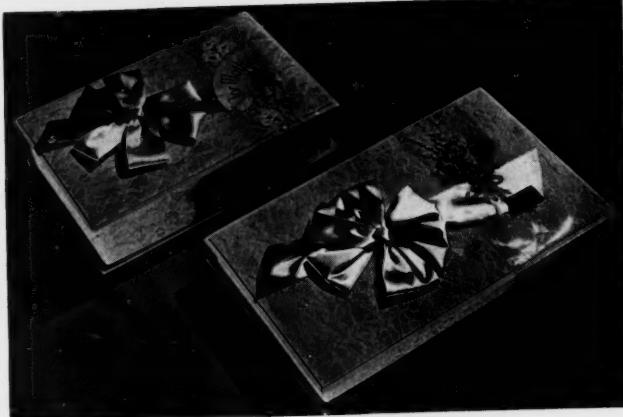
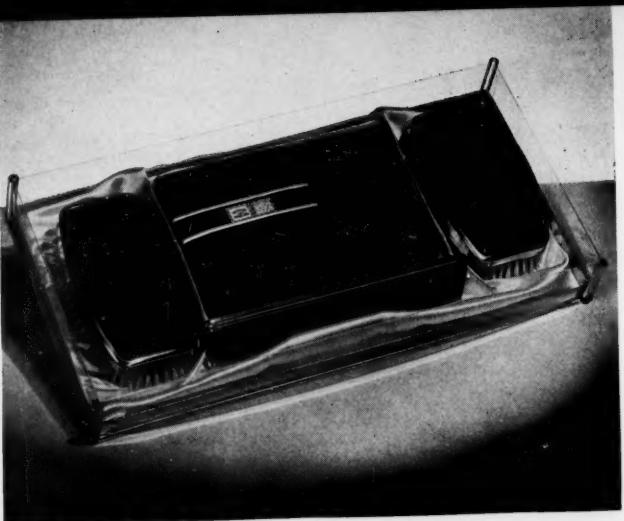


5. Effect of introducing Dowicide G into adhesive solutions to produce mold resistance in corrugated board.

the adhesive solution and thus impart mold resistance. See Fig. 5.

In the examples illustrated, the corrugated board was made up so that one liner was glued with an adhesive to which Dowicide G was added. The back liner was glued with the same adhesive containing no fungicide.

Close examination of example A shows mold growth in definite lines on the treated side. It is to be noted that the lines of mold growth occur in the space between glue lines showing insufficient diffusion into the liner. Although example B shows no mold growth in the photograph, it does show (Continued on page 66)



PACKAGING PAGEANT

1 Reflecting the new trend in opal jar design, Primrose House, Inc., has adopted these straight-walled, wide-mouthed containers with double-wall, screw-on closures, finished in the color of the jar. Label too uses a cream-colored background with black and rose type legend. Containers and closures by Hazel-Atlas Glass Co.

2 For this unusual matched set of brushes, comb, wallet and key case, produced in genuine embossed leather by Arco Metalcraft, Inc., a rigid transparent acetate box, with cylindrical corner beads and rayon lining, has been adopted. The unit provides the display essential in explaining the unusual features of this set. Box designed and manufactured by Wallace Paper Box Corp. Transparent acetate sheet material by Monsanto Chemical Co.

3 A 100-oz. round, lightweight glass jar, with single-shell screw cap, has been adopted by Derby Foods, Inc., for the presentation of tid-bits, lamb tongues and pigs' feet. In order to permit the product to be seen to best advantage, the company has kept the size of its label at a minimum, but has colored the label in bright hues to attract attention. The new jar is reported to have achieved a substantial increase in sales of these products. Jars and closures by Owens-Illinois Glass Co.

4 Six all-metal chairs are shipped in a single corrugated container, measuring only 23 in. by 20 in. by 12 in., recently adopted by the Gilkinson Mfg. Co. Simple, lightweight U-shaped inner packing pieces slip over opposite sides of each unit, preventing the pieces from coming in contact with one another and also providing an additional thickness of cushioning corrugated board at the box sides. A smaller corrugated shipping box is used for single chair units. Shipping container by The Hinde & Dauch Paper Co.

5 The Dennison Manufacturing Co. is marketing a new ring box, injection molded of acetate material after a design by William B. Petzold. Molded by General Electric Co. Acetate molding material by Tennessee Eastman Corp.

6 To build up atmosphere suggestive of Mother's Day, the United Paper Box Co. utilizes a lace velvet print paper with flint papers for edging on these extension-edge, full-tele-

scopic candy boxes. Satin ribbons and die-cut embossed labels complete the package ensemble. Papers by Hampden Glazed Paper & Card Co.

7 Embedded gold cord under the beaded rims of these cylindrical transparent containers adds a note of luxury to the housings adopted by Harriet Hubbard Ayer for these scent bottles. Bases are of paperboard with satin linings. Transparent containers by Hygienol Co., Inc. Transparent acetate sheet material by Celluloid Corp.

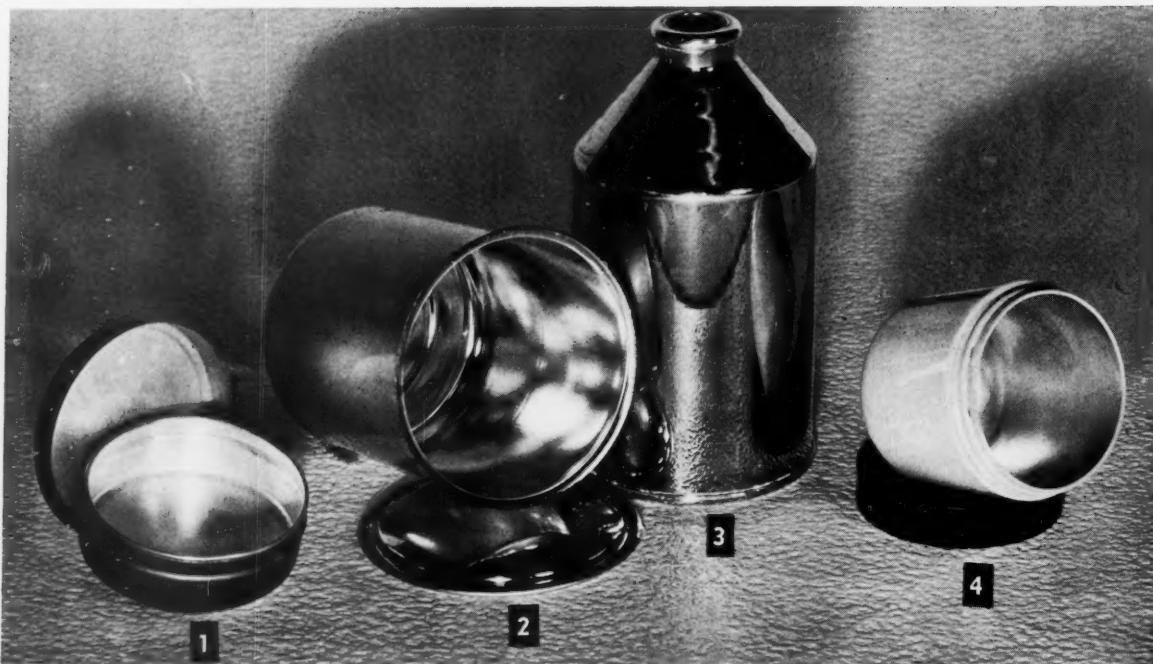
8 The Williams-Bowman Rubber Co. is now marketing its plumbing specialties in new containers designed by T. Barry Hodge, Ltd., to provide greater uniformity of design, a reduction of the number of package sizes required to handle the line and simplification of shipping and handling operations. Yellow and blue two-piece cartons in four sizes now do the job that formerly required the eight sizes shown at right rear. Knocked-down construction saves space in storage. Cartons by Lindley Box & Paper Co.

9 Glass jars have been adopted by Gaylord Bros., Inc., to replace containers formerly used for Gaylo paste. The quart jar is ridged for quick, sure gripping. The gallon jar has a bail to facilitate carrying. Screw caps are decorated to match label color schemes, both being set off by the white background afforded by the paste itself. Jars and closures by Owens-Illinois Glass Co.

10 A new product, Sparkling Cider, is now being marketed, by Sterling Cider Co., Inc., in 12-oz. emerald green bottles, setting off the attractively designed labels and topped by foil neck wraps. Bottles by Owens-Illinois Glass Co. Labels by Piedmont Label Co. Foil by Aluminum Co. of America. Closures by Armstrong Cork Co.

11 A black molded acetate base and a streamlined transparent acetate lid combine to form this attractive Parker pen and pencil box. The box top is coated on the inside with opaque color to give depth to its design. Molded by Cardinal Corp. Acetate molding material by Tennessee Eastman Corp.





1. Ointment box, approximately 0.001 in. silver. **2.** Can—silver coated by vaporization process—approximately 0.00001 in. silver. **3.** Can—prepared from silver-clad copper—approximately 0.001 in. silver. **4.** Cosmetic jar, approximately 0.0001 in. silver.

Silver as a package coating material

by A. M. SETAPEN*

Research is rapidly developing new uses for this metal despite its relatively high cost

The present market price of silver (\$5.10 per pound) puts it into the price class of some of the widely used common metals, but because of its corrosion resistance and chemical inertness, it maintains its place in the noble metals group. The protective nature of its corrosion films, its pleasing and very beautiful appearance and its inertness to a great many chemicals, food-stuffs, pharmaceuticals and the like tend to make it an especially desirable packaging material.

Silver is resistant to alkalis, to many organic acids, to certain concentrations of hydrochloric acid, to hydrofluoric and other mineral acids. It is inert to many foodstuffs and beverages such as beer, wines and alcoholic beverages, tomato and fruit juices, cider, dairy products, gelatine, jellies and others. Cosmetics and pharmaceuticals are not affected by the presence of silver and, unlike copper, cadmium, zinc and lead, it has

no poisoning or toxic effect on the human system. It can safely be said that silver is the most universal packaging material from the standpoint of corrosion resistance and chemical inertness.

This age of extreme competition has necessitated the manufacture of a great many highly specialized products, a large number of which are in a state of very sensitive chemical equilibrium. The smallest quantities of impurities or foreign substances can cause breakdown, off-taste or discoloration of the product. For example, beer will become clouded or have an objectionable flavor because of the presence of traces (a few parts per million) of either iron or tin. In many of the chemical industries, chemicals of extreme purity are necessary for exact chemical reactions. A material like silver, or perhaps its more costly companion noble metals, such as gold and platinum, is required for transporting or packaging products and chemicals of this sort.

Sunlight is often objectionable on certain commodi-

* Senior Research Associate, American Silver Producers' Research Project, Handy & Harman.

ties and for some reason or another certain of these cannot be packaged in metal containers. Sometimes colored glass is used, but the light may still filter through while standing. A thin film of silver on plain or colored glass would reflect virtually all of the sunlight, thereby protecting the product. In effect, it would make a metal container of very beautiful appearance.

The scope of the various shipping and packaging containers is very broad and they may be classified as (1) the returnable type which call for silver coatings 0.001 in. or more and (2) the non-returnable type or one-trip containers which have coatings less than 0.0001 in. thick. Examples of returnable containers are drums, barrels, cans, pails, bottles and the like which must necessarily be rugged, long-lived and refillable and which have severe service conditions. These would naturally have a coating of silver which is heavier than on the non-returnable type container. However, the initial cost of a returnable container is not of great importance and considerations of quality, sales appeal and convenience may well justify the silver lining.

Cans for beverages and foodstuffs, certain types of bottles and containers for pharmaceuticals and cosmetics are examples of non-returnable containers. It is understood that as the silver thickness is increased in this type of container it may well become an important item, but, in general, the cost of the container is relatively small when compared to the sales value of the contents. Ruggedness and the ability to withstand abuse are not very important considerations and the requirements of the coating are not very severe.

The three methods for producing silver coatings for containers which have commercial possibilities are electroplating, vaporization and chemical reduction.¹ A fourth method which may be considered applicable to the preparation of silver-lined containers is the method of making coatings by cladding (rolling duplex ingot). Silver-clad steel, nickel or copper has been produced in a pore-free condition with thicknesses of silver below 0.001 in., but the method (*Continued on page 92*)

¹ For a complete description of the electroplating, vaporization, and chemical reduction methods of silver coating containers, see "Silver in Industry," L. Addicks, Editor, Reinhold Publishing Corp. (1940).



5



6

5. Silver-lined bottles—silver coated by chemical reduction process—approximately 0.00001 in. silver.
6. Silver-lined drums and pail—silver coated by electroplating — approximately 0.001 in. silver.

PROPERTIES OF VINYL PLASTIC SHEET

Physical

Specific Gravity, g. per cc.....	1.34-1.37
Specific Volume, cu. in. per lb.....	20.7-20.4
Refractive Index Nd.....	1.53
Specific Heat, cal. per deg. C. per g.....	0.244
Thermal Conductivity, cal. per sq. cm. per sec. per deg. C.....	0.000395
Thermal Expansion, per deg. C.....	0.000069

Mechanical

Tensile Strength, lb. per sq. in.....	8,000-10,000
Hardness, Brinell (550 lb.—3 min.).....	12-15
Softening Temperature, deg. C.....	60-65
Modulus of Rupture, lb. per sq. in.....	10,000-13,000

Physico-Chemical

Effect of Water—Hot.....	Softens
Effect of Water—Cold.....	None
Water Absorption, per cent in 24-hr. immersion at 25 deg. C.....	0.05-0.15
Resistance to:	
Weak Acids.....	Excellent
Strong Mineral Acids.....	Excellent
Weak Alkalies.....	Excellent
Strong Alkalies.....	Excellent
Alcohols.....	Excellent
Ketones.....	Dissolves
Esters.....	Dissolves
Aromatic Hydrocarbons.....	Swarls
Aliphatic Hydrocarbons.....	Excellent
Animal Oils.....	Excellent
Mineral Oils.....	Excellent
Vegetable Oils.....	Excellent

I. Vinyl synthetic resin sheetings are non-flammable. The material has high moisture resistance, low moisture-vapor-transmission characteristics, as well as high strength and toughness and permanency of dimension and shape. Chart reproduced through the courtesy of the Plastics Division, Carbide and Carbon Chemicals Corp.

Fabrication of vinyl sheet packages

New thermoplastic transparent sheet possesses unusual properties—is susceptible to varied forming techniques

The physical properties of vinyl synthetic resin sheet indicate a combination of characteristics unique among sheeted plastics. Made from copolymerized vinyl chloride and vinyl acetate, the unplasticized transparent sheet has good clarity and can be pigmented or opacified to give any color in transparent, translucent or opaque effects. The material is non-flammable—it will not support combustion. In addition, it has high moisture resistance, low moisture-vapor-transmission characteristics, high strength, excellent toughness and outstanding permanency of dimension and shape. Being thermoplastic, the sheets can be bent, formed, drawn, cupped or blown to almost every conceivable shape while hot, and, after cooling, the articles hold their shape indefinitely. Important, too, is the fact that the cost of such sheets, due to large-volume production, has now been reduced to well

within the price ranges of other sheeted thermoplastics.

The available sizes and surface finishes of sheeted forms of this unusual plastic are limited only by the equipment available to produce the material. It is all made on calenders, from which it emerges in essentially continuous rolls with a "calender" or slightly grained finish. Matte-finishing and press-polishing is done in multiple-platen presses resulting in finished individual sheets cut to 20 in. by 50 in.

Finishes and Finishing

Fabricators often obtain sheet stock with a calender finish, then press-polish or otherwise finish it before fabricating. Some sheet is finished simultaneously with the forming operation. In all cases, close control of temperature within a very definite range is necessary as flow properties change.

Your hold on sales may be mighty
BUT WHAT'S THE NEXT MOVE?



If in doubt, consult BURT designers and package-engineers!

They include some of the best brains in the box and carton industry—men whose talents BURT can exclusively afford only because its great plant serves so many large and small package users.

These men possess a tremendous, working fund of packaging lore. They are keen judges of technical and artistic developments. In fact, they largely create the changes in packaging that occur every year!

The profitable ideas they can bring you are readily executed on our specialized, automatic machines that are unexcelled for speed and economy.

F. N. Burt Company, Inc.
500-540 SENECA STREET, BUFFALO, N. Y.

NEW YORK CITY
630 Fifth Avenue
Room 1461

CHICAGO
Room 2203
919 N. Michigan Ave.

MINNEAPOLIS
J. E. Moor
3329 Dupont Ave. South

PHILADELPHIA
A. B. Hebeier
P. O. Box 6308
W. Market St. Sta.

CLEVELAND
W. G. Hazen
P. O. Box 2445
E. Cleveland, Ohio

LOS ANGELES
Louis Andrews
623½ South Grand Ave.

BOSTON
A. B. Bacon
120 Boylston St.

CINCINNATI
221 Walnut Street
Telephone: MAin 0367

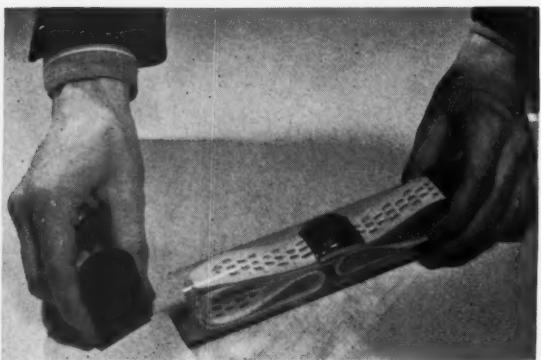
NEW ENGLAND
SPRINGFIELD
P. O. Box 214
Highland Station

MEMPHIS
Frank D. Jackson
2150 Washington Ave.

CANADIAN DIVISION
Dominion Paper Box Co., Ltd.
465-483 King Street, West
Toronto 2, Canada



2



3



4



5

Uniformly glossy or dull surfaces can be obtained by pressing the sheets between chromium-plated planishing plates which have the desired polished or matte-surface finishes. Press polishing is accomplished, together with satisfactory strain release, under a pressure of 200 to 400 lb. per sq. in. at a temperature of 150 to 155 deg. C. for 15 minutes. The same result can be achieved in a shorter time at higher temperatures under reduced pressure, but these conditions seem most consistent with practical production rates, the thermal stability of the resin and the realization of uniform temperature conditions throughout as many as ten 0.030-in. thick sheets per opening in usual multiple-platen, steam-heated presses.

In the optimum cycle, the pressure is increased gradually during the heating cycle and reaches its maximum value at about the same time that the resin stock reaches its nearly uniform pressing temperature. The pressure is then held constant until the conclusion of the temperature cycle, at which time the cooled stock is ready for discharge from the press.

Excessively high temperatures or pressures may cause the stock to be extruded from between the planishing plates. Thickness control under these conditions is difficult. Duplication of the proper conditions from one run to the next is, however, complete proof against either chemical or mechanical damage to the planishing plates and, at the same time, yields a high quality product and good production speed.

Matte-finished sheets can be press-polished by momentarily heating the stock to 80 to 100 deg. C. between planishing surfaces under a pressure of between 100 and 150 lb. per sq. in. A reasonable length of cycle can be worked out to handle as many as twelve 0.030-in. thick or four $\frac{1}{8}$ -in. thick sheets in each opening of the press.

Stamping and Shearing

Unfilled resin stock can be readily sheared in thicknesses up to $\frac{1}{8}$ in. if supported by clamps placed as close to the cut as possible. A standard guillotine or pivoted knife, as is used for paper cutting, has proved very satisfactory. With stock thicknesses over $\frac{1}{32}$ in., it is often necessary to slow down the rate of travel of the knife, and, under certain conditions, it may be desirable to warm the knife. For thicknesses between $\frac{1}{16}$ in. and $\frac{1}{8}$ in., ruler dies, as are used for cutting paper, are also quite satisfactory.

(Continued on page 97)

2. Transparent powder puff packages illustrate the possibilities of forming vinyl plastic sheet.
3. A well-designed container for S. Buchsbaum and Company's Elasti-Glass belts. Belt is of highly plasticized vinyl material, while box is of transparent and blue unplasticized vinyl resin sheet.
4. An Easter nut box with both dome and base formed from vinyl plastic sheet. Observe the deep narrow draw in the base which both reinforces and serves as a handle.
5. Typical pretzel, nut and candy packages which make use of the moisture-resistance and strength of vinyl plastic sheets. All packages fabricated of vinyl sheeting made by the Carbide and Carbon Chemicals Corp. Boxes fabricated by Parfait Powder Puff Co., Inc.

A SEAL THEY *Love* TO TOUCH



THE satin-like texture of an Armstrong's Artmold (molded plastic) Cap is pleasing to a customer's touch. And the ease of sealing and unsealing bottles capped with these trim, modern closures is another sales-factor well worth your consideration. This convenience builds good will for your product.

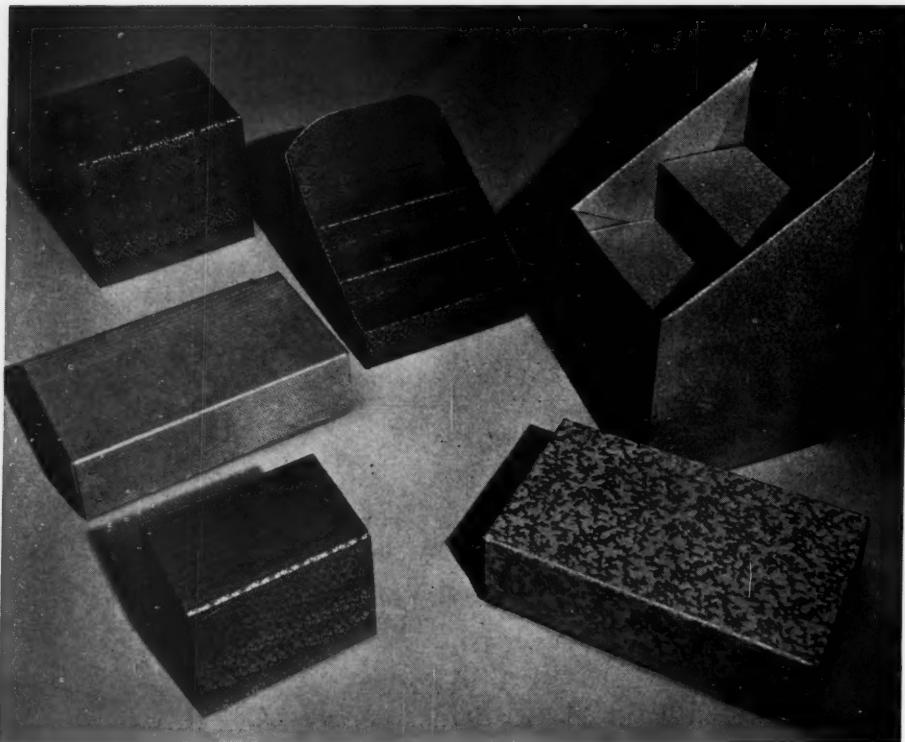
But that's not all. Armstrong's Artmold Caps are striking—modern—stylish. They make a compelling

impression about your product in every customer's mind. This impression helps to create a desire that means more sales for you.

A wide range of colors is available for your selection; special shapes can be molded to your specifications. For samples and prices of these dependable seals, write Armstrong Cork Co., Glass and Closure Division, 916 Arch St., Lancaster, Pa.



Armstrong's ARTMOLD CAPS



An idea of the variety of patterns available in the new type of multi-color corrugated board may be had from this illustration, demonstrating the applicability of the board for display purposes, for use as shipping containers and for general box use.

Multi-color patterned corrugated

New development permits use of all-over designs in as many as six colors

In the early days of corrugated board, this material found itself in competition with wooden shipping cases. Its development, therefore, reflected this competition and the attention of corrugated container manufacturers was directed toward the improvement of the physical qualities of their board and the containers made from such board.

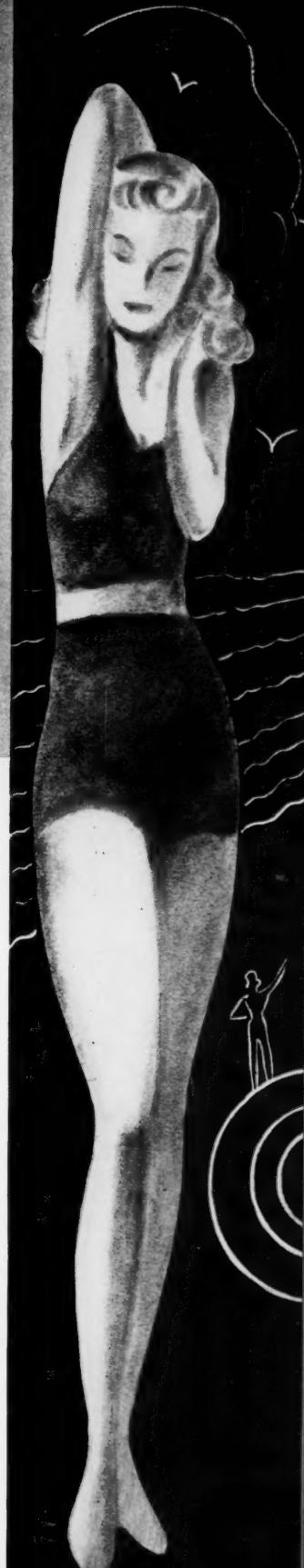
In recent years—with the first battle virtually won—the makers of corrugated containers and displays found that possibilities for expansion lay quite as much in improving the appearance of the product as in improving its structural qualities. This trend expressed itself in multi-color imprinting of cartons and in the development of boards lined with colored papers. Such cartons served, to a large extent, to bring the corrugated container out of the class of “shipping case pure and simple.” Corrugated shippers took on a secondary, but important, function as displays. Corrugated came into increasing use for unit packaging of merchandise—such as electrical appliances—trans-shipped by the retailer to the ultimate consumer, without removal from the manufacturer's original shipping container. Fi-

nally, the new decoration processes encouraged the development of the corrugated floor stand.

A new development, which bids fair to carry on and extend this trend, has recently been introduced upon the market in the form of corrugated board printed with all-over designs in as many as six colors. The new board can be made in any weight, with A or B flute and with single or double facing. It is thus available in rolls of varied widths or fabricated into boxes or displays. A wide range of stock designs are available, including a number of so-called “semi-custom” designs for imprinting. The inks used are of a water-proof, sun-fast type and are claimed to insure the original appearance of the board through the hazards of shipment.

The development of multi-color surfaces, integral with the corrugated board, is believed to offer a number of possibilities for expansion of the use of corrugated beyond its present fields, although the cost of the new type of material is not so great as to preclude its use, to any extent, in the major corrugated container fields.

Credit: “Colgated” board developed and manufactured by the United Container Co.



CRAFTSMANSHIP and SHOWMANSHIP COMBINE TO MAKE HEEKIN CANS MORE ATTRACTIVE...

It costs no more to make a tin can colorful and attractive than it does to turn out a dull, lifeless, unattractive container. Heekin lithographs all its cans with harmonized colors . . . colors that are created, ground, blended and tested for Heekin Metal Lithography by Heekin Color Experts. Heekin believes in showmanship in packaging . . . showmanship that portrays the character and quality of merchandise . . . whether it is bonbons or chocolates . . . tea or spice . . . soap chips or lye . . . automobile polish or cigars. Bring your metal packaging problems to Heekin for expert attention.

THE HEEKIN CAN CO., CINCINNATI, OHIO

Heekin Cans
LITHOGRAPHED
With Harmonized Colors

Food Technology Institute Conference

Second annual meeting finds increased attendance with numerous speakers emphasizing packaging developments

The second annual Food Technology Conference, which was held recently in Chicago, found some 500 members of the Institute of Food Technologists in attendance. While all of the sessions of the meeting touched, in one way or another, upon packaging as an essential part of the technology of food preservation, a special session on food packaging brought out much data of special interest to packaging production men and the packaging industries in general.

At the general business session, the three principal officers of the society, president, S. C. Prescott, Dean of Science of the Massachusetts Institute of Technology; vice president, R. C. Newton, chief chemist of Swift & Co. and secretary-treasurer, G. J. Hucker, chief in bacteriology research of the New York State Experiment Station were reelected for a new term. The following were elected to the governing council: E. J. Cameron of the National Canners Assn., Carl R. Fellers of the Massachusetts State College of Agriculture, G. A. Fitzgerald of General Foods, N. Y., C. M. Fred of Standard Brands, N. Y. (Fleischmann Laboratories) and B. F. Proctor of the Massachusetts Institute of Technology.

At the session devoted to the packaging of foods, Arthur B. Erikson, research director, Lakeshire-Marty Co., Division of Borden Co., took as his subject "A Comparative Study of Packaging Materials for Process Cheese." Mr. Erikson pointed out that "Food manufacturers are continuously searching for new packaging materials for their products because of the possibilities for finding materials that will improve the appearance, increase the life or decrease the cost of the package. In the Lakeshire-Marty laboratory at least two dozen new materials are tested each year.

"Before passing judgment on the suitability of a new wrapper for this product, a number of tests are necessary which must be arranged to answer the following ten questions:

1. Does the wrapper impart a flavor to the surface of the cheese?
2. Does it contribute to the development of a surface odor or flavor?
3. Does it slice well?
4. Will it peel away from the cheese easily?
5. Does it adhere so close to the surface of the cheese that dropping a package will not cause it to loosen?
6. Does it adhere well enough to the surface that mold or bacterial growth will not spread rapidly beneath it in case it is fractured?
7. Does it retain the moisture in the cheese when exposed to relatively high temperatures and low humidity?
8. What happens to the wrapper

when the packages are stored at a high humidity?

9. What are its qualities at low temperatures, especially with respect to brittleness and adherence to the cheese surface?
10. Will it keep the cheese in good condition for storage periods of eight to twelve months under varying conditions of temperature and humidity?

"With these points in mind, a direct comparative study was made with tin foil and eight new wrappers including cellophane, coated cellophane, Pliofilm and coated glassine paper and the results are presented showing that two of the new materials rank well in comparison with foil while the most serious defects of the others were moisture loss, lack of adherence to the surface of the cheese, mold growth in the wrapper itself, objectionable flavor and separation of coating from the backing."

H. J. Reynolds, in charge of Poultry Research at Armour and Co., in discussing "Some Methods of Protecting Stored Frozen Meats and Poultry" said, "For years the idea of using 'cold storage foods' was not acceptable to most people. Today the use of the words 'frosted foods' and 'quick frozen foods,' referring essentially to cold storage, has changed the idea of 'cold storage foods' from one of distaste to one of desirability.

"Methods of preserving the frozen foods in storage had to be devised in order to maintain the original flavor and freshness necessary to create a demand for these products. This paper refers to some of the methods used in preserving frozen meats and poultry in storage.

"Temperatures of freezing and storing, wrapping materials and cartons, sizes and shapes of shipping containers and other factors have been studied in an effort to present, or at least minimize, deterioration of frozen stored foods."

Observations on materials used in packaging frozen fruits and vegetables was the subject of William Rabak, biochemist, Bureau of Agricultural Chemistry and Engineering, U. S. Department of Agriculture. Mr. Rabak said in part, "This study of package materials, wrapping materials and packages was undertaken in an attempt to assist the frozen pack industry in the selection of container and wrapping materials most suitable for the storage and merchandising of frozen fruits and vegetables.

"The study involved examination of various paperboard carton stocks with reference to impermeability to both water and moisture-vapor at 70 deg. F. as well as 0 deg. F. The results indicated that paperboard

STOPPERS for shoppers

DO YOUR PRODUCTS say "Stop" to everyone who passes the retailer's counter? If they do, you've gone a long way toward completing sales.

The packages, dispensers, and display case illustrated here show a few of the many smart designs in which transparent *Eastman Acetate Sheet* is being used. The stopping power of this sparkling material is limited only by the attractiveness of the merchandise placed behind it. The trim neatness it lends to any product, in fact, adds sales appeal.

Tough and durable, *Eastman Acetate Sheet* can be shaped to virtually any design you need. The crystal-clear transparent type gives all the advantages of open display, yet at the same time it provides complete protection from dirt and handling.

You should have all the facts about this versatile material. For working samples and technical information about the three types of *Eastman Acetate Sheet*, write to . . . Eastman Kodak Company, Chemical Sales Division, Rochester, N. Y.

Eastman Acetate Sheet is available in rolls of any convenient length up to 40" in width, and in standard- and cut-to-size sheets. The transparent type is supplied in 7 thicknesses, from .003" to .020"; matte-surface (translucent) type in .003", .005", .0075", and .010"; colored (translu-

cent) type in a wide range of light-fast pastel shades. All three types can be pleated, fluted, scored, folded, cemented . . . take printing inks without wrinkling . . . do not crack or shatter . . . readily combine with other materials. The transparent type can also be molded and drawn.

Eastman Acetate Sheet ATTRACTS...DISPLAYS...SELLS

BE SURE TO VISIT THE
KODAK BUILDING
AT THE NEW YORK
WORLD'S FAIR



1 In these novelty packages the sparkling transparency and printability of *Eastman Acetate Sheet* are utilized to provide added sales appeal.

2 The entire front of this merchandise dispenser is a single length of transparent *Eastman Acetate Sheet* . . . the result—complete visibility plus protection.

3 Here transparent *Eastman Acetate Sheet*, printed in 2 colors, is combined with tin to form handy, attractive counter dispensers that keep the product clean and fresh.

4 This silverware gains appealing brilliance from the *Eastman Acetate Sheet* that forms the cover of the display case; and the transparent material also effectively retards tarnishing.

carton stock impregnated with paraffin (hot treatment) was inferior to paraffin coated stock (cold wax process) in the resistance to passage of water or moisture vapor.

"The wrapping and lining materials examined included various types of paraffin treated papers, viscose sheets, rubber hydro-chloride compound sheets and celluloid sheets. The determinations were conducted according to the method of Tressler and Evers which measures the passage of moisture through the material from an atmosphere of saturated humidity to air atmosphere of 50 per cent relative humidity.

"The studies of wrapping materials indicated a wide variation in moisture-vapor resistance. Ordinary wrapping paper and plain parchment were both found to have little or no value in preventing the passage of moisture vapor. On the other hand, wax-coated paper and wax-coated parchment were both found to be quite effective in resisting the passage of moisture at all temperatures. Both the moisture-proof viscose sheets and the rubber compound sheets were found to exhibit excellent moisture proof qualities. A special experiment devised to test the effect of sharp creasing on the moisture-vapor resistance of the wrapping materials indicated that folding decreases the efficiency of wax-coated papers but has no effect upon the efficiency of moisture-proof viscose or rubber compound sheets."

A paper prepared jointly by Charles L. Smith and John W. Barnet of the research department of the Continental Can Co., Inc. took up the subject of "The Control of External Corrosion of Tin Cans."

"From time to time various papers have been published on the internal corrosion of tin containers packed with foods. On the other hand little has been published to assist canners and other users of tin cans in overcoming trouble sometimes encountered with external corrosion. Any of the various types of external corrosion may have an effect of diminishing customer acceptance of foods in tin containers. It is the purpose of this paper to point out the various causes of external corrosion of tin cans from the time they are delivered at the cannery, following through the various steps of the canning procedure and warehousing. Suggestions are offered in each instance for overcoming this corrosion. These suggestions are based on the results of experimental work conducted in both the laboratory and in the field.

"Corrosion may affect the tin can at several different stages of operation in the cannery and warehouse. Cans frequently became corroded due to changes in atmospheric conditions. The nature of the product being canned may have a direct effect on the external appearance of the tin container. The presence of air in the steam during processing may cause severe attack. If cans are submerged in corrosive waters during processing or cooling, they may be attacked. Corrosive carry-over from boilers may be a factor. The sweating of cans during storage and shipment is another of the points discussed.

"Some electrochemical corrosion problems which may arise from contact of the cans with other metals

particularly during processing are described and suggestions are given for overcoming such action by proper lining of retort crates. Considerable discussion is devoted to attack by corrosive waters used in the cooling of tin cans. Such waters may be treated very inexpensively."

Flash pasteurization of containers for fruit juices was the subject of a paper by Carl S. Pederson, chief in research, Division of Bacteriology; H. G. Beattie, associate in research, New York Agricultural Experiment Station and E. A. Beavens, Bureau of Agricultural Chemistry and Engineering, U. S. Department of Agriculture. The paper pointed out that "Studies on methods of preparation of juices and other by-products from fruits produced in the Northern States have been underway for a number of years. Earlier studies were confined to methods of preparation, and the resulting products were nearly all packed in plain glass bottles. In later studies various types of containers have been utilized including plain, amber and green bottles, closed with crown corks and with vacuum seals, and plain cans as well as various enamel lined cans. In the majority of cases the juices were deaerated and flash pasteurized at as low a temperature as seemed commercially feasible in light of our experimental results. Containers were filled hot, sealed and usually cooled three minutes after closing.

"The only type of tin container found suitable for these fruit juices was an enamel lined can. Juices retained their characteristics in this fully as well, if not better, than in glass bottle.

Evan Wheaton, research department, American Can Co., discussed the "Microbiology of Fibre Containers for Liquid Foods."

"Previous investigators have reported studies on paper mill sanitation, paper examination, manufacturing standards and objective tests for paper mills and paper converting plants. In the present paper, suitable methods for bacteriological studies of paper mill operations, paper stock for fibre milk containers as well as for the fully fabricated container are described.

"The results obtained demonstrate the high sanitary character of paper stock used in fibre milk containers. Data obtained by cooperating laboratories on comparable samples indicate that available test methods give reliable and consistent results."

G. J. Brabender, chemical engineer of the Marathon Mills Co., reported upon "Studies on the Water-Vapor Permeability of Paper Containers for Dry Foods."

"The water-vapor permeability of several types of sheet materials commonly used for packaging food products is shown to be influenced by the atmospheric conditions employed in measuring.

"Sheet materials which have an affinity for water vapor such as those having a cellulosic base show rapidly increasing water-vapor permeabilities with increase in relative humidity at constant temperature. In the case of non-polar type sheet materials having little or no affinity for water vapor the relationship between permeability and relative humidity approaches linearity.

The business of supplying ADHESIVES FOR 100 INDUSTRIES

With 8,500 formulae on file and 900 in active demand—the result of pioneering in adhesives since 1885—Arabol serves thousands of manufacturers. The chart below barely suggests the wide range of problems successfully solved.

Your Arabol Representative is qualified by long and wide experience to help you find your requirements. Many problems

can be whipped right in your factory, in one day. At all times, he can call upon any of three laboratories for quick action on new or special needs . . . See the Arabol Representative when he calls. Let him tell you of current developments in gums, glues and pastes for your particular line of business. It is quite likely that he will be able to show you new applications or new economies.

LABEL MFRS. Remoistening gums. Special pastes and glues.	CANNERS Machine pickup and lap labelling. Spot tin labelling.	TOILET PREPARATIONS Embossed labels. Carton sealing.	TOYS Liquid wood glues.	CASKET MFRS. Interior paste. Cov- ering glue. Sizing.	MACARONI MFRS. Lining pastes. Seal- ing glues.
SAMPLE CARDS Transparent, non- warping pastes.	BREWERS Iceproof labelling glues. Government stamp pastes.	COFFEE, TEA, SPICE Label adhesives for aluminum, tin and glass. Carton seal- ing and shipping case adhesives.	GAMES Special adhesives for: wood, card- board, paper.	TOBACCO MFRS. Cup glues. Ciga- rette seam glues. Cork tip gums. Case sealing glues.	RAZOR BLADE MFRS. Envelope and carton sealing adhesives. Shipping case seal- ing.
HOSIERY Rider ticket adhe- sives. Labelling litho- graphed boxes. Case sealing.	DISTILLERS Strip stamp adhe- sives. Hand label pastes. Machine label glues. Case sealing adhesives.	HARDWARE Steel or iron label adhesives. Label- ling waxed wood handles.	LEATHER BELTS Latex base adhe- sives for spraying. Buckle covering ad- hesives.	FLOOR TILES Special cements for mounting.	NEWSPAPERS Mailing machine paste. Wrapping adhesives.
COMMERCIAL PHOTOGRAPHERS Mounting photos to paper, cardboard, linen.	WINERIES Waterproof bottle label adhesives. Bar- rel labelling.	PAPER BAGS Bottom and seam adhesives for plain paper, foil, cello- phane, glassene.	NOVELTIES Glues—Pastes leather to wood, cardboard to paper, paper to tin, tin to leather.	GLOVE MFRS. Seam composition. Lining composition.	PAPER DRINKING CUPS Seam pastes, mois- tureproof. Bottom gums, moistureproof.
ARTIFICIAL FLOWERS Leaves. Petals. Stems. Cloth Sizing.	SOFT DRINKS Iceproof and straight label glues. Body and neck labelling.	PAPER TUBES Spiral tube glues. Convolute tube glues.	BROOM MFRS. Labelling painted wood. Labelling waxed wood.	LAMP SHADES Heat resisting adhe- sives for: silk, parch- ment, oiled paper.	PAINT MFRS. Tin labelling. Glass labelling. For hand or machine work.
PATENT MEDICINES Glass labelling. Bot- tle wrapping. Car- ton sealing.	BOOKBINDERS Hot glues—backing. Fly leaf paste. Gum- ming machine glues.	TIN CAN MFRS. Case sealing glues.	MOUNTERS— FINISHERS Prepared glues. Hot non-warp glues.	ENVELOPES Back gums. Seal gums. Back and seal dextrines.	PAPER BOXES Wrapping gums. Non-warp pastes and glues. Dry strip- ping gums. Prepared stripping and wrap- ping glues.
COSMETICS Lipstick labelling. Adhering rouge cake. Sealing pow- der boxes.	PRINTERS Make-ready paste. Flexible glues. Pad- ding compositions. Pad cements.	PAPER MILLS Roll heading adhe- sives. Paper sizing.	CIGAR BOX MFRS. Lining pastes. Label glues for wood—tin.	MAP MFRS. Mounting pastes for: paper, cardboard, muslin.	★

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ing the adhesives requirements of
a hundred industries. Write us for
the name of the nearest Arabol
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Adhesives? . . . ARABOL!



1. Modern locker plants now number over 3000. They have adopted every device, from extensive advertising to modern architecture, to impress themselves upon the community mind. 2. Below: Interior view of the locker section of a recently built plant. Note ventilating slits in locker doors. All illustrations courtesy of "Butchers Advocate."

Locker plants as package outlets

Young industry offers good potential for quick-frozen food sales and use of specialized packaging materials



Back in 1927, a manager of a creamery in Walla Walla, Wash., found that he could freeze excess fish or game which he caught or shot until he was ready to use the food. By word of mouth, the idea caught on and in a few years, his firm was forced to build a separate room and to install food lockers to take care of the hunters and fishers in the neighborhood. From this small beginning there has sprung up an industry which today numbers some 3000 plants, each representing an investment of some \$12,000 to \$20,000 and up. New plants are coming into the picture at a rate of about 40 each month.

While originally a depression phenomena, locker plants are no longer patronized exclusively by the poorer segment of the population or by farmers and many now cater to a trade representing every element of the population from the poorest farmer to the president of one of the largest automobile corporations. No longer are lockers homemade accessories, installed in a local cold storage warehouse. A number of companies manufacture elaborate rental lockers in a variety of types, together with accessory equipment, facilitating the handling of locker frozen foods.

To some, the growth of the locker industry has seemed to be competitive with the growth of the quick-

INDEPENDENT AND HELPFUL



Important to Can Buyers

Nothing is more interesting to can buyers than a source of supply that makes strong, leak-proof, handsomely decorated containers available at a fair price.

The demand for such a service is greater than

ever before. Perhaps that is why users in ever increasing number are coming to Crown for the solution of their problems, recognizing that in Crown's ultra-modern plants quality control is given new emphasis.

CROWN CAN COMPANY, PHILADELPHIA, PA.

Division of Crown Cork and Seal Company

BALTIMORE ST. LOUIS HOUSTON MADISON ORLANDO
FORT WAYNE NEBRASKA CITY

CROWN

CAN

frozen food industry. Recent surveys, however, show that these plants—by and large—are providing substantial outlets for pre-packaged quick-frozen foods, particularly for varieties not locally grown. In propagating the quick-freezing idea, such plants have enlarged the market for packaged frozen foods.

The locker plant itself, however, offers a market for the supplier of packaging materials and the manufacturer of packages. Numerous conferences of locker plant operators have seen an increasing amount of discussions relating to packaging materials. The principal materials utilized are in the wrapping group, since it is necessary for most individual items, which are to be locker stored, to be previously securely wrapped to prevent the loss of moisture and consequent freezer burn. For this purpose, moisture-vapor-proof wrappers are utilized. These also have the advantage of preventing the food from absorbing flavors or odors which may be present in storage. Among the materials which are achieving an increasing market in this field are the cellophanes, particularly the heat-sealing varieties. Parchment papers and waxed papers are also utilized. The quantity of such wrapping papers used per plant has been rapidly rising and the figure of \$50 per plant per year, reported some years ago, today represents a substantial underestimate.

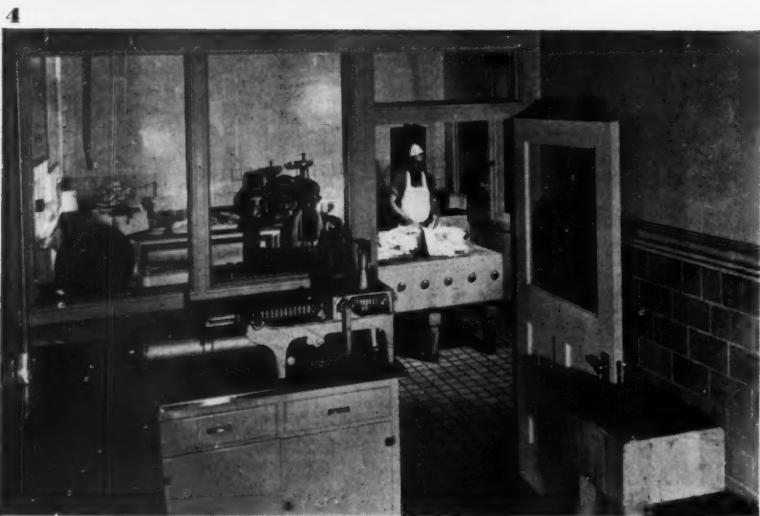
An increasing number of plants are using converted films of the types here described, usually in the form of envelopes or bags. The best practice calls for sealing wherever possible, although other methods of securing a virtually moisture type wrap are frequently utilized. To a lesser but increasing extent, containers of both the folding carton and the paper pail varieties are utilized for certain types of products, notably for fruits and berries. These are usually wax-treated varieties.

Some material suppliers, who have made extensive studies in the field, now offer special varieties of wrapping materials designed to meet the conditions common to the locker plant, conditions which obviously demand greater flexibility and which usually postulate the use of only limited equipment for securing an effective wrap. As a result of the research which wrapping material manufacturers have carried out, it is now possible for locker plant operators—even though inexperienced in packaging—to acquire all the necessary technical information to permit them to adequately protect the produce brought to them by their clients. With improvement in such protection now the order of the day, a continued and perhaps more rapid growth of the locker plant industry may be anticipated, with a correspondingly increasing growth of package materials and pre-packaged frozen foods through this outlet.



3

3. Heart of any locker plant is the cutting and wrapping room where food products, brought by locker lessees, are prepared for freezing. **4.** Another typical modern food preparation room. Proper wrapping and packaging is essential if quality is to be preserved. Locker plant operators are therefore vitally interested in retaining consumer goodwill through emphasizing packaging. **5.** Lockers in this plant are lifted from below floor level by means of an electric hoist. Note large size of lockers required for average family use.



4



5

**INDUSTRIES
THAT PROFIT
FROM Ridgelo
CLAY COATED
SERVICE . . .**



andy Gum

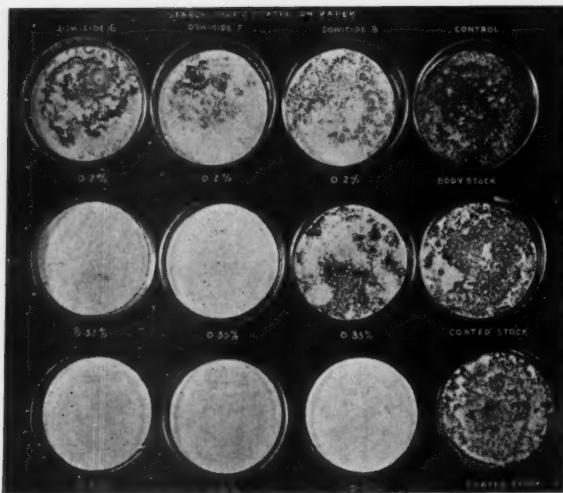
Perhaps you never associated . . . a nickel product with an appeal to everyone and a clay coated carton board famous for its use in high-quality packages. Yet candy gum needs all the "counter-class" possible and has found that the best (not the cheapest) package produces the fastest sales. So Ridgelo clay coated boxboard was chosen to help accomplish this through better printing, ink saving, extra gloss, snap and smoothness. This industry has learned that a bargain package may even lose sales, but the right carton design on Ridgelo clay coated will make sales. That's why—

Clever cartons deserve Ridgelo clay coated . . . all others need it.

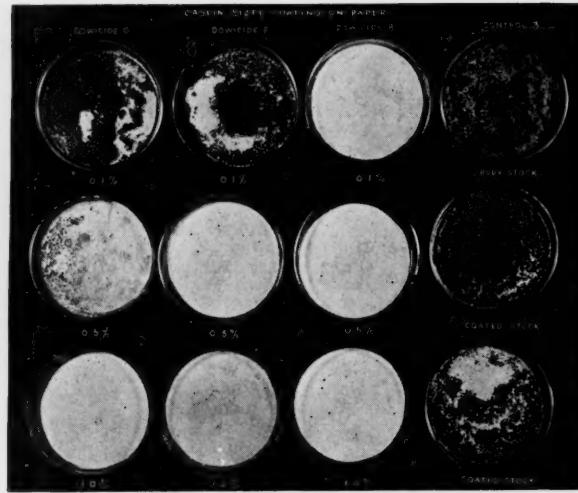
Ridgelo
CLAY COATED
BOXBOARDS

**MADE AT RIDGEFIELD, N. J.
BY LOWE PAPER COMPANY**

Representatives: E. C. Collins, Baltimore • Bradner Smith and Company and Mac Sim Bar Paper Company, Chicago • H. B. Royce, Detroit
Gordon Murphy and Norman A. Buist, Los Angeles • A. E. Kellogg, St. Louis • Philip Randolph & Son, Inc., Philadelphia



6. Effect of Dowicides with two types of starch sized papers.



7. Effect of Dowicides with two types of casein sized papers.

FUNGICIDES FOR PACKAGE PAPERS

(Continued from page 47)

mycelium under the microscope. Example C shows complete control, thus indicating that at this concentration, 2 per cent Dowicide G, sufficient diffusion of the fungicide has occurred. The back liners show mold growth in all examples, inasmuch as there is no fungicide present in the adhesive.

As we have mentioned before, certain commodities having a high moisture content are often a cause of mold growth since packages in which they are contained will tend to absorb moisture from them. If the moisture content becomes sufficiently high, mold growth will inevitably result. An outstanding example of this condition occurs in the packaging of soap. Mold growth has been known to occur on all paper products used to package soap—from the inner wrap to the outer wrap, the carton and even the carton-sealing tape.

All of these products need an individual fungicidal treatment. The inner wrap may be made mold resistant by calendering with a water soluble fungicide. The outer wrap, if it is coated, may secure its mold resistance by the inclusion of a fungicide in the coating solution. On the other hand, if it is a waxed paper, a wax soluble fungicide should be used.

It should be mentioned here that different types of coating adhesives will require different fungicides; for example, starch is best preserved with Sodium Pentachlorphenate, while Sodium Orthophenylphenate or Sodium Trichlorphenate is best for casein. In other cases, combinations of fungicides are best. In a wax-coating operation, certain waxes may inhibit the efficiency of the fungicides, thus making the selection of the proper fungicide specific. The amounts of Dowicides

used are calculated on a specific coating formula, but illustrate the fungicidal effect that may be obtained. See Figs. 6 and 7.

There are two problems to be considered in the mold proofing of gummed tape; the tape backing and the adhesive. Of these two, the most susceptible to the action of molds is the adhesive. Protection of the adhesive is simple in that it is necessary to add only a small amount of fungicide to the adhesive solution. A fungicide of low vapor pressure should be selected so that protection for the adhesive will be obtained over long storage periods.

The treatment of paper tape backing is the same as for any other light paper stock; i.e., either by calendering or beater treatment. Cloth backing requires either immersion in a fungicidal solution, with fixation to make the fungicide insoluble, or addition of the fungicide to a sizing solution.

There have been cases where another factor, not ordinarily considered, is responsible for the starting of mold growth. A package is only as mold resistant as the printing on it. Many inks contain adhesives which, under proper conditions, act as nutrients for the support of mold growth. Therefore, where inks are to be used, under such conditions, a fungicide should be included in the formula.

With the increasing usage of paper products, it naturally follows that there are many instances where mold resistance is a prerequisite of optimum performance. Developments are under way for the production of paper for the wrapping of bread, bacon, ham, butter and other such products, which, in themselves, are susceptible to mold growth and which should be treated not only to prevent infection on the paper, but also to protect the packaged article. Also, where glue is used in sealing operations for food containers, the use of a germicide is often advisable to keep down the bacteria count.



Which one would you choose?

It would be pretty hard to make a choice from this group of bright little fellows. The same is true in buying closures. They all look pretty much alike. How can you be sure which one is the best?

For nearly 50 years Crown has been making closures for glass containers. Into the manufacture of each closure goes the experience and knowledge gained through the solution of hundreds of sealing problems . . . resulting in a closure of greater efficiency and dependability.

Guesswork is eliminated when you put Crown Closures to work for you. They are your best



assurance that, as far as the cap is concerned, there will be no dissatisfaction with your package.

Samples and prices are yours for the asking. You'll find that it will pay to investigate today!

CROWN CORK AND SEAL CO., BALTIMORE, MD.

World's Largest Makers of Closures for Glass Containers

**IN THE LONG RUN —
CROWN CLOSURES COST LESS..**

CCS
SCREW CAPS VPO CAPS
LUG CAPS MASON CAPS
VACUUM CAPS CROWNS
DOUBLE SHELL CAPS
CAPPING MACHINERY

Cards that are Aces ON THE SALES COUNTERS

Weak cards don't win — in your game or on the sales counters. So why handicap your product with low value cards!

Metal Novelty producers can speed up sales by following the lead of the cosmetic and beauty aid manufacturers.

Literally millions of Addison "litho-class" cards have proved they are aces on the sales counters by selling cosmetics, bobby pins, wavers and other items on the "5 & 10" counters everywhere.

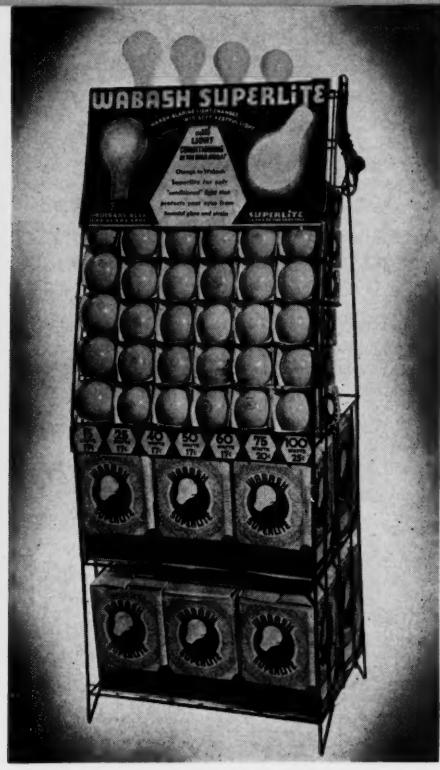
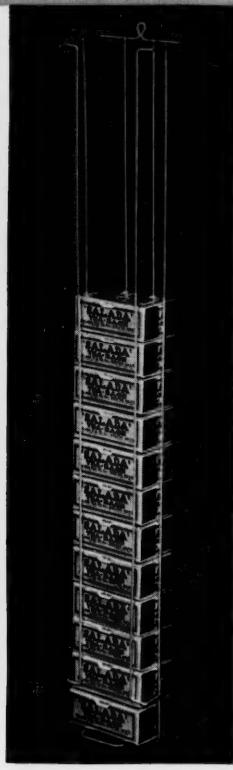
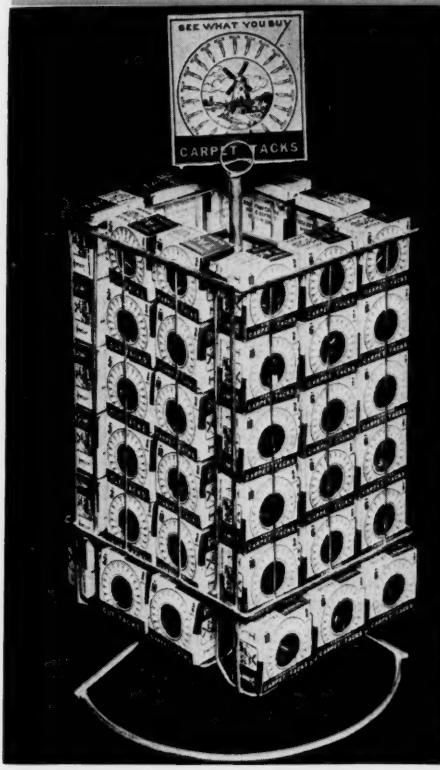


DISPLAY CARDS — CARTONS — LABELS — WRAPS — COUNTER DISPLAYS

ADDISON LITHOGRAPHING COMPANY

500 FIFTH AVENUE, NEW YORK ROCHESTER, N. Y. 64 WEST RANDOLPH ST., CHICAGO

MODERN DISPLAY



1. Counter type, revolving, multi-column dispenser. Photo courtesy The Washburn Co. **2.** Pilaster style for wall attachment. Photo courtesy The Washburn Co. **3.** Floor stand dispensing rack with bulb testing device and base storage compartment. Photo courtesy Central Wire Frame Co., Inc.

Dispensing displays: part 2

A study by the Institute of Package Research

In Part 1 of this study (*Modern Packaging*, July), dispensing display functions and applications were considered as well as folding boxboard and set-up boxboard construction types. In the second part of this study, we consider three more major construction types—wire, sheet metal and wood.

* * *

Dispensing displays constructed of paper or paperboard are usually designed for shipment with merchandise already inserted into the display-container. While some units of this type are refillable, the more general custom is for the dealer to discard the display when the last unit of merchandise contained therein has been sold. A new display fre-

quently accompanies the refill order of merchandise and replaces the old unit on its nail or hook. The cost of the display is compensated for, in part, by the fact that the unit serves as a shipping container or as a partial protection for the product in shipment.

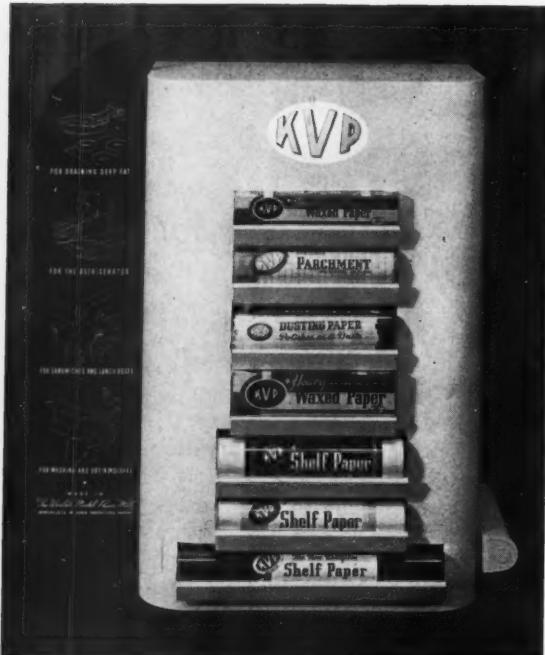
In contrast to these paperboard types are the more permanent types of displays designed to assume a long-term position in the retail store. Such units may or may not be shipped with the merchandise already in position. They are almost invariably designed to permit the dealer to refill the unit with additional merchandise as stocks are depleted. They frequently are of much larger size than the paperboard types. A fairly large percentage, in fact, are display stands designed to be located on store floors rather than upon counters or back shelves. Three general construction types are to

be found in this group—namely, the wire, the sheet metal and the wooden displays. Frequently, however, units utilizing two or all three of these materials have been manufactured and additional materials are likewise sometimes used.

Construction Types—Wire

Wire dispensing displays are made in a wide number of types and sizes—ranging from the simple vertical rack, holding one column of merchandise, to complicated

4. Counter unit designed where height limitations make virtually flat display desirable. Note varying sizes of the three dispensing trays. Photo courtesy Union Steel Products Co. 5. A 3-ft. high dispensing unit of lacquer-finished wood and wallboard. Seven slanting shelf reservoirs feed packages to the dispensing troughs. Designed and produced by W. L. Stensgaard & Associates, Inc.



floor and counter fixtures with rotating arrangements or other devices designed to facilitate examination of the merchandise and to excite consumer interest. All wire displays, however, have one primary advantage in that the material of which they are constructed permits great visibility of product combined with high structural strength. Because of this feature, they have frequently been adopted when broad lines of merchandise must be displayed and when consumers must select sizes or types within the line from the display cabinet.

An outstanding instance of this sort is the carpet tack display used by the Holland Mfg. Co. Here an aluminum-finished wire rack, with a height of 15 in. and a diameter of 10 in., holds 72 unit packages of tacks so positioned that every package is visible to the consumer. Twelve separate columns of merchandise, three to a side, permit the consumer a very wide selection of sizes or types of tack. The entire display unit pivots on a central axis formed of heavier wire and surrounded by a clip holding a display card or price tag.

Another variation of this style is a type utilized by Johnson & Johnson for dispensing adhesive tapes. Here these columns of merchandise are set on a revolving spindle. Since the tape is wound on hollow spools, the falling column is replaced by columns of merchandise in which the unit to be sold is removed from the top rather than the bottom. Rising through the cores of the spools are loops of wire with price tags set at the top of each loop. The central spindle upholds a display panel completing the unit which carries a very substantial quantity of merchandise while occupying a minimum counter area.

Frequently, wire displays are utilized to dispense two or more varieties of merchandise as in the case of the Burgess battery display which flanks six searchlights held in a wire rack with two columns of battery cells. The searchlights must be raised for removal from the display, but the cell dispensing columns work on the dropping principle with removal of each unit being had from the bottom of the column.

Another variation, reflecting a recent development, is the transparent-faced wire display designed to facilitate mass display of the merchandise, but to prevent removal of the product by the consumer. Such dispensing units are particularly applicable to products of high unit value or of small size where pilferage is to be discouraged. The transparent facing—made of any one of the rigid transparent sheet materials—is applied directly to the front top faces of the display unit. Visibility of the product is thus maintained while protection against pilferage is afforded.

Floor stand types are many and varied, wire lending itself particularly to this variety of display construction since wire displays may be so designed as to fold in shipment and since they are relatively light weight. This latter factor reduces shipping costs to a minimum. In most cases, the dispensing portion of the display does not extend below table level, the base of the unit being used for storage purposes. (*Continued on page 78*)

Lightweight cast metal display

Lacquer finishes give beauty and permanence to new Northam Warren units

With counter display space at a premium—particularly in the better grade of drug and cosmetic shops—manufacturers have shown an increasing interest in displays capable of winning a permanent position on selected counters and of providing substantial aid to the salesclerk in consummating a sale. Such displays are not so much merchandise carriers as they are demonstrators. As such, they must be ingenious in design, extremely attractive in appearance and must possess sturdiness and long life, obtained despite fairly rigid limitations upon cost.

One new display which meets all of these requirements is that recently adopted by the Northam Warren Corp. as a demonstrator for Peggy Sage nail polishes. The unit consists of a white stepped base—providing positions for six bottles of varicolored polishes. Rising from this platform and integral with it is a graceful hand, the fingernails of which bear polish colors.

The unit is cast in a mold or matrix constructed of bronze and consisting of a number of parts. The hot metal is poured into this mold at a temperature of approximately 750 deg. F. and the metal, which does not adhere to the sides of the mold, is poured out and back into the furnace. The result is a hollow, lightweight casting having a low raw material cost. The weight of the cast may be controlled by lengthening or shortening the period in which the metal is allowed to cool in the mold before the unsolidified remainder is poured out for return to the furnace. Thus weight may be added where, in a particular design, the base or support must carry a load.

The castings are finished in colorful lacquers which afford a highly attractive finish plus permanence and wear resistance. Metallic colors, such as those utilized on the Peggy Sage unit, are likewise available and colors may be blended one over the other.

The Peggy Sage display is unique in another respect, namely, in the patented construction of the fingertips designed to extend the life span of the display by permitting the retailer to change the fingernails of die-cut colored cellulose acetate. Each fingertip provides a slotted receptacle for these removable nails.

Credit: Display designed and manufactured by the Bronzart Metals Co.

1. The new Peggy Sage unit utilizes a bronze-coated cast metal hand to draw the eye, by its graceful curves, to the fingernails demonstrating nail polish colors. 2. A patented construction permits the removal and replacement of the acetate fingernails to permit color changes.



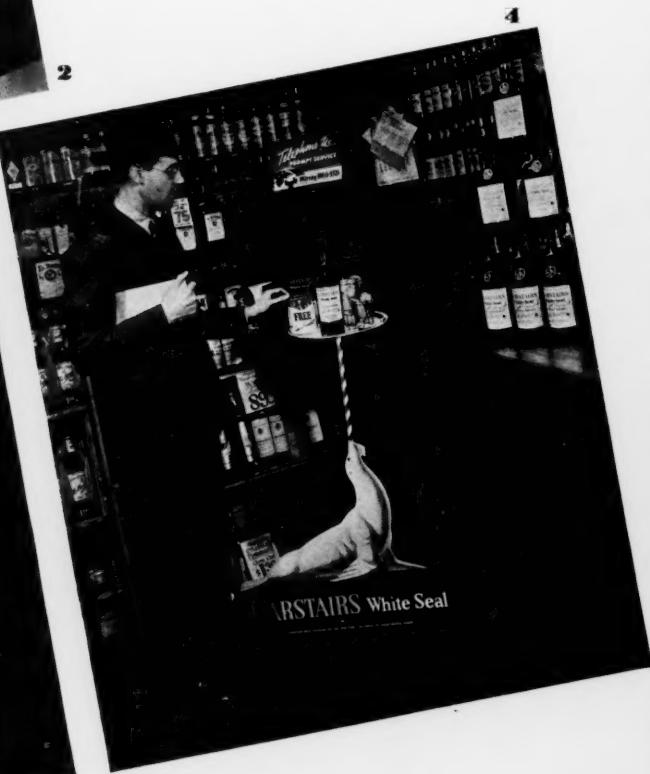
DISPLAY GALLERY



1 This novel pyramid display, formed of lightweight, decorated corrugated board, is so designed as to present 25 balls of various types and sizes within a counter space area of less than 2 sq. ft. As adopted by The Barr Rubber Products Co., four circular shelves are attached to a six-sided conical base. Each ball rests in a die-cut hole in the shelves. Display designed and manufactured by The Hinde & Dauch Paper Co.



2 The Faultless Rubber Co. has adopted a rigid transparent cylindrical counter dispenser to display and store its nipples. Instead of a conventionalized lid, an enlarged reproduction of a nipple is used to provide a distinctive and eye-compelling advertising feature. Display fabricated by Transparent Specialties Mfg. Co. Transparent acetate sheeting by Celluloid Corp.



3 A counter display bin, similar in appearance to the large-size floor stands used for mass display, has been adopted by the Bayer Co. to introduce to consumers its new easy-

opening tin. Empty tins are heaped in the open bin, the side panels of which invite consumers to examine the new container. Tins by Owens-Illinois Can Co. Display by Carl Percy, Inc.

4 This display started with a brand name and a slogan. The white seal balancing the tray provides a graphic picturization of both the brand name and the idea of "balanced blending." Recipe booklets, fitted into a pocket in the tray, are at just the right height for the consumer. Display designed and produced by Brett Lithographing Co.

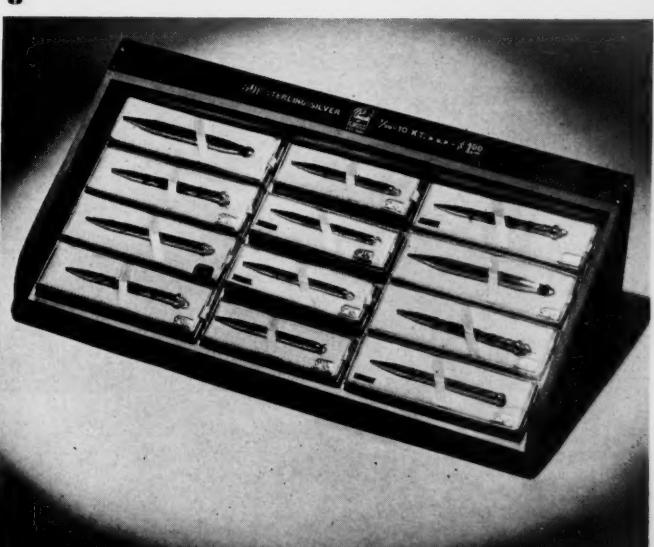
5 To appeal to paint dealers and to the professional painters who provide the principal market for du Pont prepared paints, the company utilizes these full-size, full-color reproductions of painters at work. The units may be utilized as a group or separately, thus making possible an extremely flexible window arrangement. Display designed and produced by Ketterlinus Lithographic Mfg. Co.

6 To illustrate the results to be attained by the use of color harmony in makeup, Max Factor provides dealers with this five-panel window display featuring current motion picture

favorites in direct color reproductions. The display is so designed that the four smaller sized cards can be utilized as counter units, if so desired. Display designed and produced by Einson-Freeman Co., Inc.

7 The word "Collins" all too often suggests a drink of which whiskey is not a component. To promote the summer use of its product, Calvert Distillers Corp. provides dealers with this cool-looking window unit, suggesting a "Whiskey Collins." The small side panels can be re-utilized within the store as counter displays or wall hangers. Display lithographed by Zerbo, Inc.

8 A. T. Cross Co. has adopted this wooden counter display fixture equipped with a rigid transparent acetate window, providing a full view for a complete assortment of pencils, while protecting the merchandise from dirt and pilferage. Each pencil rests in its own individual box on a sliding platform. The dealer secures access to the merchandise by withdrawing the platform through the rear of the display unit. Lightweight construction and sturdiness, made possible through the use of rigid transparent sheeting, is reported to minimize shipping costs. Display fabricated by Rueckert Mfg. Co. Transparent acetate sheeting by Monsanto Chemical Co.



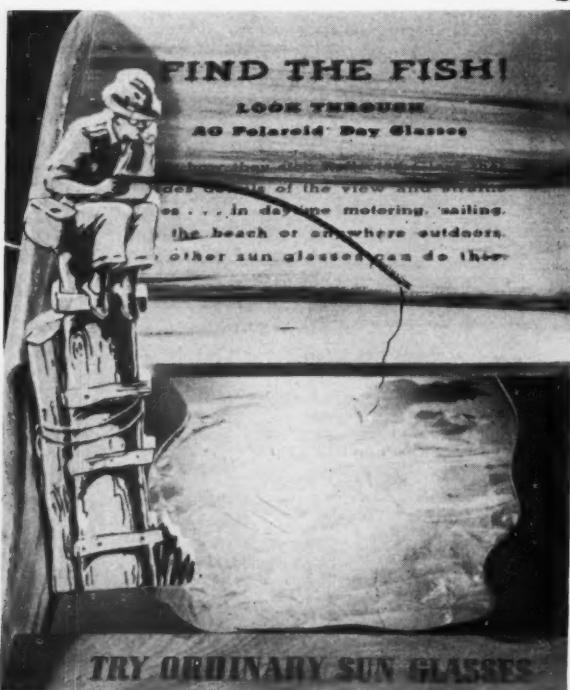
Novel optical demonstration technique



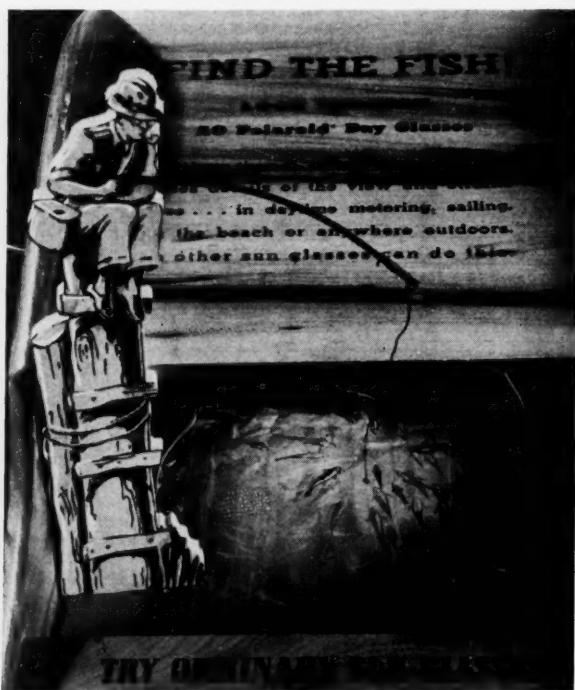
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1. The wooden unit as it appears on the optician's counter or examining desk is attractively finished to match most standard store equipment. 2. Photograph taken through ordinary sun glasses showing a consumer's eye view of the demonstrator. 3. Photograph taken through Polaroid glasses showing absence of glare and view of fish at bottom of the pool.

2



3



SO.....

**YOU NEED A STURDY UNIT
BUT YOU CAN'T AFFORD A
WOOD OR METAL
DISPLAY?**



- **STRONG**
- **INEXPENSIVE**
- **PILFER PROOF**
- **PERMANENT LOOKING**
- **EXCELLENT SHIPPING UNITS**

**THESE HEAVY LAMINATED
CARD BOARD DISPLAYS
ARE THE ANSWERS
TO THE SAME PROBLEM.**

MERIT has just about every facility from the first rough layout, to the most intricate finishing services right under its own roof. All the departments of display creation: art work, silk screen, printing, die-cutting, mounting, etc., are integrated into a smooth organization especially adapted to the solution of difficult display problems. Small runs of large displays, large runs of small displays, broken runs and a host of other tough assignments are routine with us.

MERIT DISPLAY CARD COMPANY

36 West 20th Street

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New York City



A wide variety of effects are obtainable by new casting and coloring methods. Note particularly sculptural detail and heightened three-dimensional effects achieved through coloring the front faces of letters.

Cast clay relief displays

New casting and decoration methods
revivify this old type of reminder unit

While cast plaster clay display pieces are not in themselves new, recent advances in the technique of their production have greatly widened their application in the display field. This is particularly true of the white clay composition type, in the decoration of which marked advances have been made. As manufactured today, these moldings have a clean, sharp-cut appearance, without any taper or "draw." It is possible to achieve very sharp definition of lettering and design and to maintain the sharp edges, both through production and throughout the life of the unit.

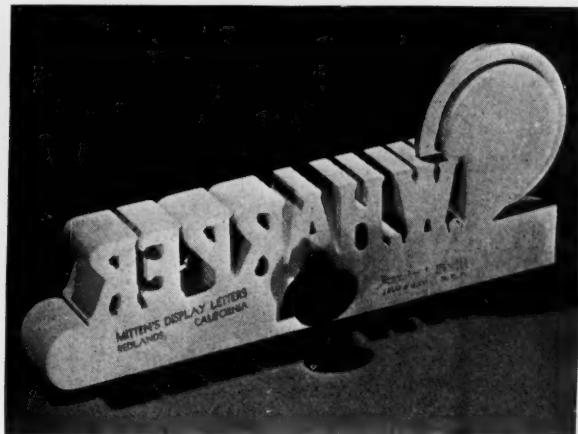
Decoration in brilliant colors is achieved with relatively low cost by applying special varnish inks to the facings of the molding. These inks are rolled on and the sharp whiteness of the molding itself, on the sides of the relief letters, serves to heighten the relief effect and outline the three-dimensional letters or symbols. In most instances, it has been found practicable to utilize three colors. There is, however, no limitation as to the number of colors that can be utilized and displays using a single color or as many as five or six colors have been produced. Since sharply defined letters of relatively small size can be had, with an extension in relief beyond the principal surfaces of the front face, as little as $\frac{1}{32}$ of an inch, it is possible to achieve fairly extensive wording color to contrast with the brilliant white background. A good example of this is seen in the I. W. Harper unit which carries some 16 words of finely detailed lettering on its base, in addition to the outline trade-name letters.

By a slightly more expensive method, it is possible to achieve imbedded colors as well as "face" colors. An example of this type of color is seen in the Lime Cola display which utilizes this process in addition to the three surface colors on its faces. Here the entire display, front, back and relief faces, carries an all-over yellow color with white and red coloring rolled onto the relief letter surfaces. Relief displays of this type offer an opportunity to achieve sculptural detail not readily obtainable by most other methods.

A number of different types have been developed, notably the wall plaque—equipped with hangers or pins for attachment to the wall—and the stand-up type which may be had with or without suction cups or "Stikit Strips." Since displays of this type have achieved their widest use in the liquor field, the suction cup types—with the rubber cups attached to a metal strip imbedded in the clay compound—are frequently used when the unit is to be attached to a backbar mirror. "Stikit Strips" are utilized for attachment to cash register tops or to other points where a firm seat for the display is essential in the busy retail establishment to prevent the unit from being displaced by retail clerks or consumers. In locations where units are not likely to meet consumer or dealer handling, the weight of the unit itself may be counted upon to afford sufficient stability.

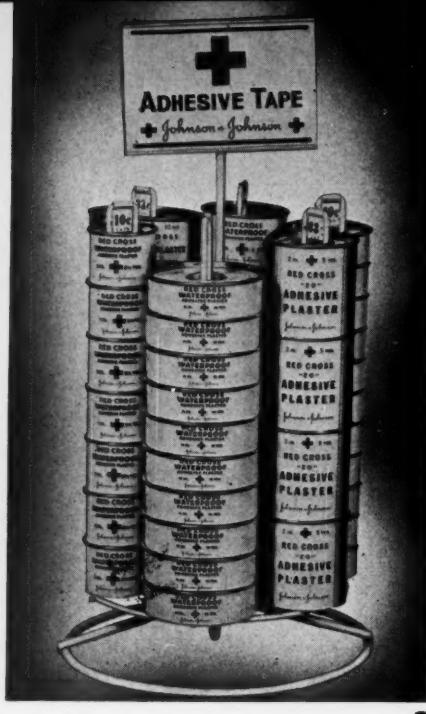
Credit: Displays produced by Mitten's Display Letters. Units designed by Bransby & Hewitt, Eastern distributors, and the Mitten company

Wall hangers are equipped with metal hanging fixtures or pins for hanging. Counter units are secured either by "Stikit Strips" (left below) or by rubber suction cups attached to metal strips imbedded in the clay compound.

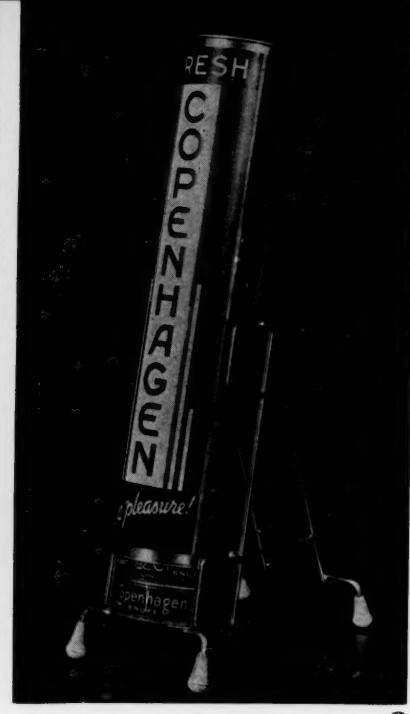




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6. Sheet metal counter dispenser equipped with dealer convenience features in rear compartments.
 7. Revolving display fixture to hold six different sizes of adhesive tape. Unit stands 17 in. high and is only 7 in. in diameter. Photo courtesy The Washburn Co. 8. Originally designed as a wall-hanging dispenser tube, this unit is now distributed with a wire counter rack to bring the product within reach of the consumer. Note rubber ball feet to protect store fixtures. Photo courtesy Union Steel Products Co.

DISPENSING DISPLAYS: PART 2

(Continued from page 70)

Construction Types—Sheet Metal

Sheet metal displays are, in some respects, similar to wire displays. The wide metal surfaces, however, offer greater opportunity for decoration and for explanatory and selling copy. A wide variety of types for dispensing purposes are in use, an outstanding example being the Goodyear rubber heel cabinet. This latter is a revolving circular stand, carrying 12 columns of merchandise and permitting the immediate selection of any desired size. The dispensing gates of this unit are so designed as to permit the removal of two units of merchandise at a time since such heels are invariably sold in pairs. Surmounting the column of merchandise is a smaller cylinder carrying the Goodyear trade mark and descriptive copy.

Another outstanding example of sheet metal counter dispensers is the one sponsored by Bauer & Black for the sale of Blue-Jay corn plasters. This wedge-shaped unit is equipped with a number of devices aimed to attract both the dealer and the consumer. To draw consumer attention to the display, a temperature and humidity guide is located at the top of the slanting front face. This interesting device is designed to stop the consumer and to remind him of the relationship

between warm weather and foot troubles. At the base of this front face is found the dispensing porte from which the individual packages of corn plaster may be removed. Virtually the entire front face of the package, in position for removal, is visible in this porte.

The unit is designed for easy reloading by the dealer who merely lifts out the drawer which carries the merchandise. This drawer is located immediately behind the front face of the dispensing display and is inclined at the same angle, forming a dispensing chute when inserted into the display stand. The dealer merely drops 2 doz. sales packages into the drawer and replaces it into the stand to achieve reloading. The enclosed display protects the packages from dust.

In promoting the unit to retailer, Bauer & Black have taken pains to sell the retailer on the convenience features in the back of the display. The portion of the wedge not occupied by the drawer is partitioned off to provide a rubber-band bin and a string dispenser complete with a metal eye through which the string is fed. The dispenser has been sold to retailers on a "deal" arrangement in which the retailer purchases 11 doz. corn plasters and 1 doz. callous plasters. In consideration of this purchase, he is given not only the dispenser, but six balls of string and a box of rubber bands to complete the installation.

An intermediate type, utilizing both wire and sheet metal, is that adopted for Copenhagen snuff, a product packed in a round flat metal can. Here a wire rack with rubber ball feet upholds a metal cylinder, holding the individual cans of snuff in column formation. A

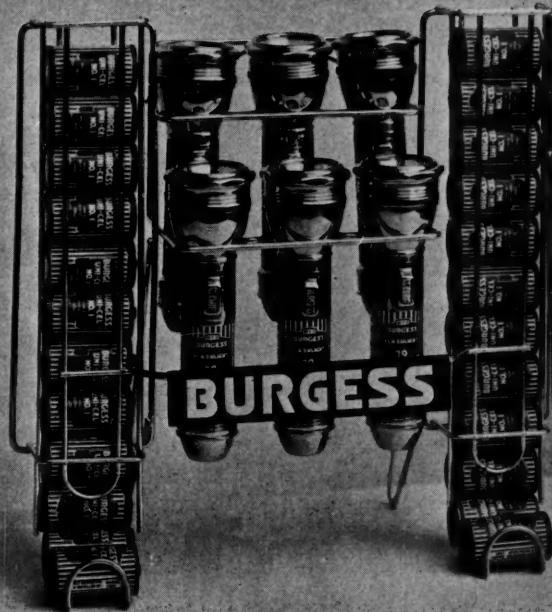
series of holes on the side of the metal cylinder permits the dealer to see at a glance just how many packages are left within the dispenser.

Construction Types—Wood

Wooden displays of the dispensing type are often constructed along lines similar to those described in the foregoing sections dealing with wire and metal displays, although these are perhaps less frequently used than the wire or metal types. Combinations of wood and transparent acetate sheet material are, however, coming increasingly to the fore and a number of these are dispensing varieties.

Larger wooden units, somewhere on the border between displays and store fixtures, are, however, widely used in some fields. An outstanding example of this sort is the 3-ft. high dispensing unit used by the Kalamazoo Vegetable Parchment Co. for displaying and dispensing its line of waxed and parchment papers. This unit has seven dispensing gates with seven slanting interior shelves carrying the reserve supply of stock. As packages are removed one by one from the dispensing gates, additional packages automatically drop forward. The unit is finished in an attractive color scheme with durable lacquer colors.

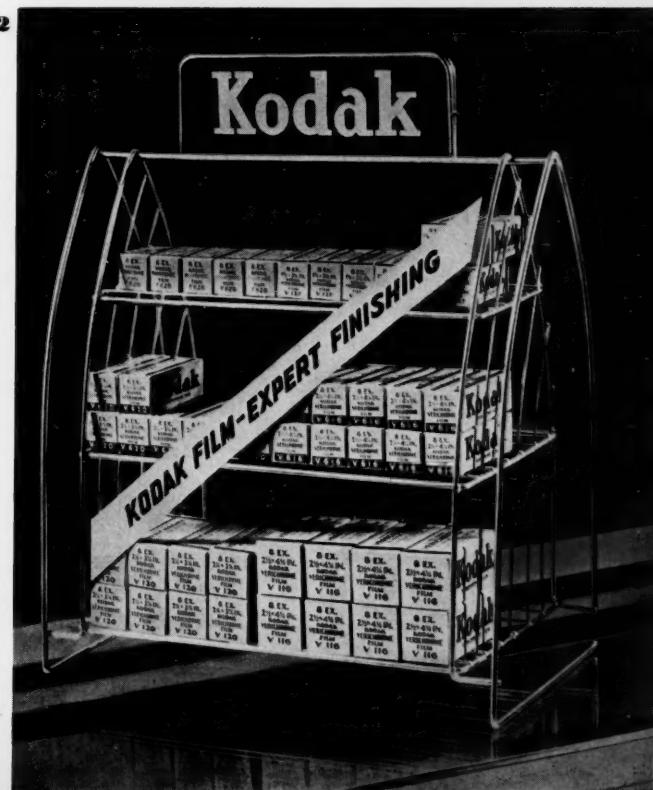
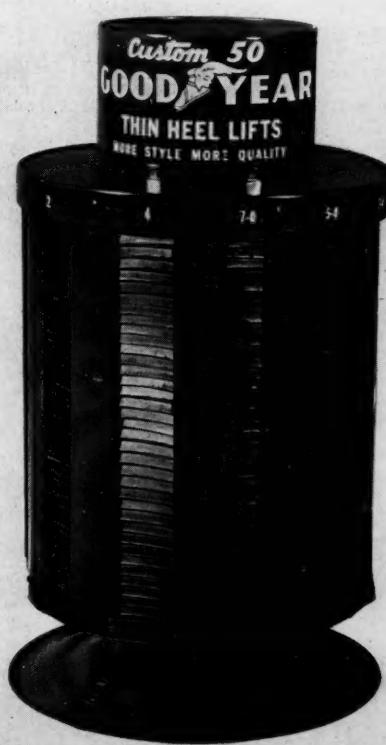
9. Battery vending display holding 24 cells and six search-light cases in a space measuring only 15 in. by 15 in. Photo courtesy The Washburn Co. **10.** Pill package dispenser constructed of wire with transparent acetate sheeting applied as front face. Unit stocks and dispenses substantial quantity of merchandise, but discourages consumer handling and pilferage. Photo courtesy Union Steel Products Co. **11.** Revolving stand holding wide selection of shoe lifts. Note that dispenser is designed to feed two lifts simultaneously. Photo courtesy Advertising Metal Display Co. **12.** Wire display rack holding wide assortment of film. Front face of rack is printed transparent acetate sheeting. Photo courtesy Eastman Kodak Co.



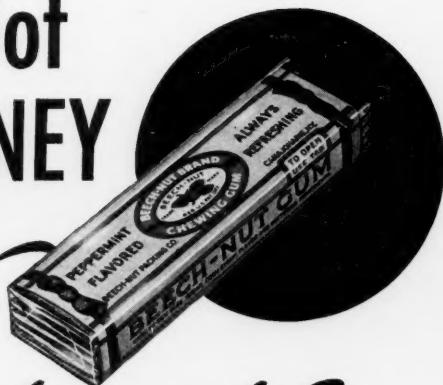
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11



You can learn a lot about SAVING MONEY



from a 5¢ Package of Gum!

Any manufacturer interested in lower wrapping costs will do well to ponder a package of gum . . . No simple wrapping job, when you consider that each stick is wrapped in foil and band, and the five sticks enclosed in another band, plus an outer "Cellophane" wrap with an easy-opening tape! Yet it still sells for only a nickel—the same low price you paid when you were a youngster!

The Package Machinery Company

has "thrived" on such tough wrapping problems ever since the earliest days of machine wrapping. Over a quarter century of experience, covering virtually every industry in which packaged goods are produced, has taught us *where to look* for the necessary savings, and has helped develop the *ingenuity* to achieve them.

The constant quest for utmost economy is reflected in every machine in our line . . . Whether you invest in a standard-type carton wrapping machine, or a special machine for a particular purpose, you will find that every detail of its design and construction has been planned with **LOW OPERATING COST** in mind. This

is but one reason why over 80% of all machine-wrapped products in the country are wrapped on our machines.

Go After Savings Now

The first step is to get in touch with our nearest office. We will gladly examine your package and study your present wrapping methods. Our recommendations involve no obligation.

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PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

Packaging Production and Technique



I. General view through the Cutex packaging sections. Automatic lines are in the foreground with the hand-packaging tables situated in the extreme rear. Note highly favorable lighting conditions.

New Northam Warren plant: part 2

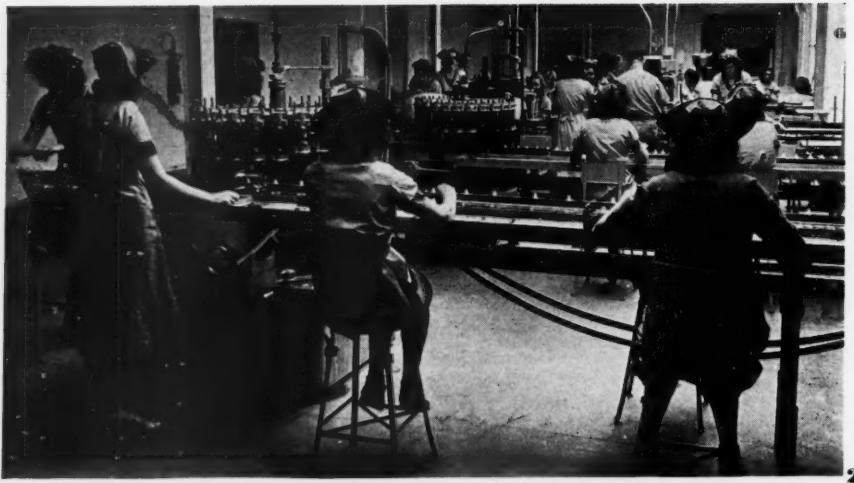
In the July issue of Modern Packaging, the material-handling system for finished goods at the Northam Warren plant was discussed and illustrated in some detail. In the present article, we shall consider the actual packaging operations of the company.

The smooth functioning of the many automatic, semi-automatic and hand-packaging lines required to handle the multiplicity of products produced in this plant is, of course, dependent, to a very high degree, upon the smooth handling of both completed packages and incoming packaging materials. Such handling is facilitated by the layout of the new plant which is built—sandwich fashion—with the packaging divisions set between two giant warehouses, one holding raw materials, i.e., bottles, closures, cartons, shipping cases, etc., and the other containing finished packaged goods ready for shipment.

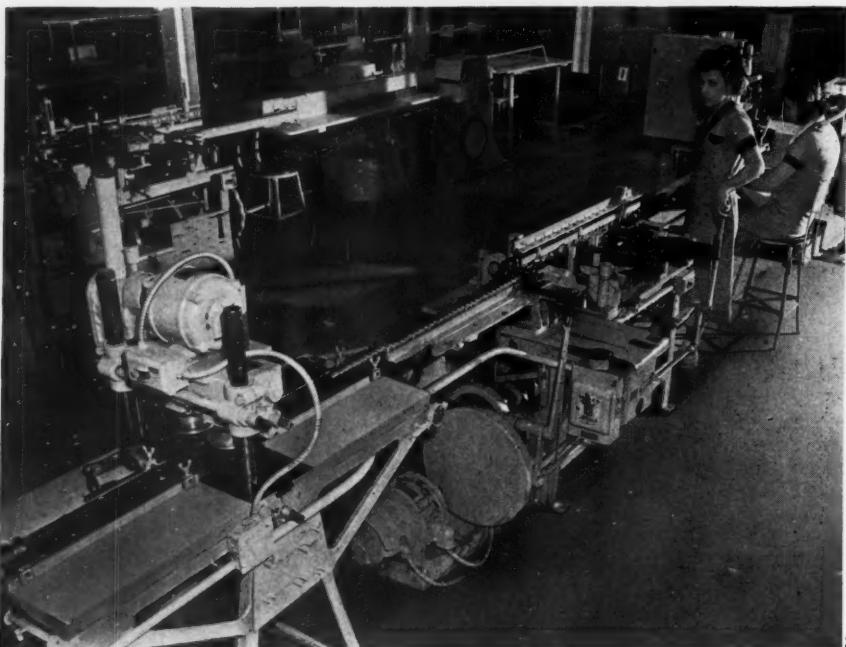
While conveyor handling of raw materials in their transit to the packaging lines was considered, the designers of the plant decided that this method would not be ideal in this particular instance. They here gave

consideration to several factors, notably the wide range of the company's products, with over a thousand sizes, shapes and types of containers. They also took cognizance of the seasonal character of many of the production runs. In view of these and other factors, it was decided to utilize electric lift trucks to move skid loads of packaging materials from the warehouse to a point in the liquid and cream filling rooms immediately adjacent to the beginning of each packaging line. At this point, the package parts are removed as required for placement upon the filling and packaging lines.

Two separate filling rooms are utilized—one handling the products of the Odorono group and the other handling Cutex nail polish and related items. A very wide range of equipment is installed, including hand-operated filling pumps for lines requiring intermittent production or limited output and ranging upward therefrom to fully automatic lines operating at extremely high speeds with rotary and straight-line fillers of the latest types. Special equipment is found in these rooms, designed to facilitate the application, by



2



3

automatic methods, of the quill and brush closures which are utilized on certain of the nail polish products.

The filling rooms are specially ventilated with a system capable of changing the air many times over each hour. The rooms are equipped with vapor-proof lines and special electric motors. Special precautions are taken to insure perfect cleanliness for the product and ideal hazard-free working conditions. The fastest lines in this room operate at a rate of approximately 150 units per minute and are reported to be the fastest in the industry.

Immediately after the capping stage, all filling lines in both rooms proceed through portes in a curtain wall to the labeling and cartoning room. Here cap tighteners secure the closure firmly, labels are applied either automatically or by hand, cartons are applied to those products requiring them and, on some lines,

small cartons are automatically bundled with label-sealed bundle wraps.

In this giant room, measuring 240 ft. in width and over 150 ft. in the opposite direction, are also located numerous hand-packaging tables where assembly and packaging operations are performed on products requiring limited production or on special productions of a seasonal nature.

Every effort, however, has been made to facilitate materials handling even on the hand-packaging lines. For this purpose tables equipped with centrally located belt conveyors are utilized in most instances.

A number of automatic case sealers are set on portable mounts and moved from line to line as required. At the discharge end of every line, completed packages are gathered upon skids and removed by electric lift truck to the finished stock-storage room. The use of

2. View in the Cutex filling room. Material is brought to this room from raw materials storage on electric truck and skids. Note high speed rotary fillers.
3. Two of the 14 fully mechanized filling lines. In immediate foreground is seen a cap tightener with labeler next in line feeding to a cartoner and thence to a bundling machine.

skids eliminates all handling operations from the time of discharge from the packaging line until the individual package is lifted for inclusion in an outgoing order.

A type of electric lift truck having an extremely short turning radius is utilized. This permits the machine to enter between the various packaging lines and to deftly remove material from any given point of assembly without disturbing the operations of the lines themselves or inconveniencing the packaging line attendants. The use of wide aisles will likewise result in lower maintenance cost, it is believed, since all machinery is readily accessible from every side. This should likewise result, over the years, in substantial savings in shut-down time required for the making of repairs on machinery.

Ample consideration has been taken of the possibility and the probability of further expansion of the company's business which would require additional packaging space. Past records of expansion fully justify this optimistic viewpoint and the new plant provides facilities for the rapid enlargement of any given packaging operation or even whole groups of packaging operations without undue crowding of the packaging room floor. This is particularly true of the special production, hand-packaging tables which are set in a bay located at the far southern end of the main packaging room and which are provided with ample excess floor space to permit of expansion to meet seasonal emergency peaks.

The same is true of the raw materials storage section where high ceilings and adequate lighting permit the storage of vast quantities of materials—sufficient to take care of any anticipated normal production with margin to spare for unexpected delivery delays. Yet great reliance is placed upon the orderly utilization of all space and upon the efficient movement of materials

through the manufacturing and packaging areas in a manner which prevents cluttering of the packaging production lines.

The building structure has been planned along modern lines to facilitate movement of materials through the plant and to make possible the easy rearrangement of equipment. The single story construction, which prevails throughout most of the plant, permitted the setting of steel pillars upon very wide centers and thus there are few obstructions on the working floor. The utmost possible use is made of daylight. Not only are the side walls virtually all-window, but daylight is given access into the innermost portions of the building through the use of vertically mounted skylight windows. Alternate sections of the roof are set at a higher level than the remaining portions of the roof and enclosed in glass. Thus whenever daylight is obtainable, there is no necessity for utilization of artificial light. For night work and for cloudy days, an ample artificial lighting system has been installed, with high-mounted, shielded flood lamps which provide an even glareless illumination.

Credits: Consultant engineer, Francis Chilson. Cream filling machines, Arthur Colton Co. Liquid fillers, The Karl Kiefer Machine Co. Cap tighteners, Crown Cork & Seal Co. Inc. Labelers, Economic Machinery Co., New Jersey Machine Corp. and Pneumatic Scale Corp., Ltd. Cartoners, F. B. Redington Co. Bundling machines, Package Machinery Co. Portable case sealers and compression units, Standard-Knapp Corp. Semi-automatic and hand-operated tube fillers, F. J. Stokes Machine Co. and Arthur Colton Co. Conveyor belt tables, The Karl Kiefer Machine Co. and Lowerator Mfg. Co.

4. Skid platforms are used for all storage purposes. Here the electric lift truck is shown with skid partly raised for stacking. Materials may, if desired, be stacked right up to the roof of the room without hand labor.

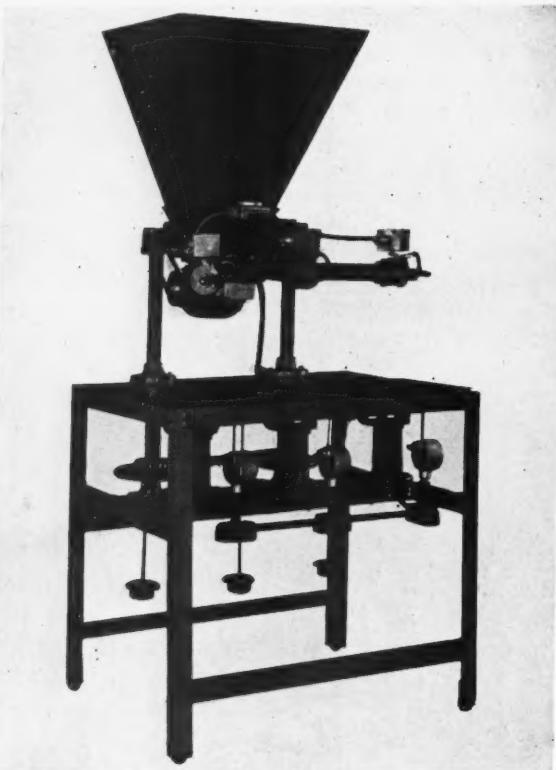


Equipment and Materials

NEW DEVELOPMENTS IN PACKAGING MACHINERY • METHODS and SUPPLIES

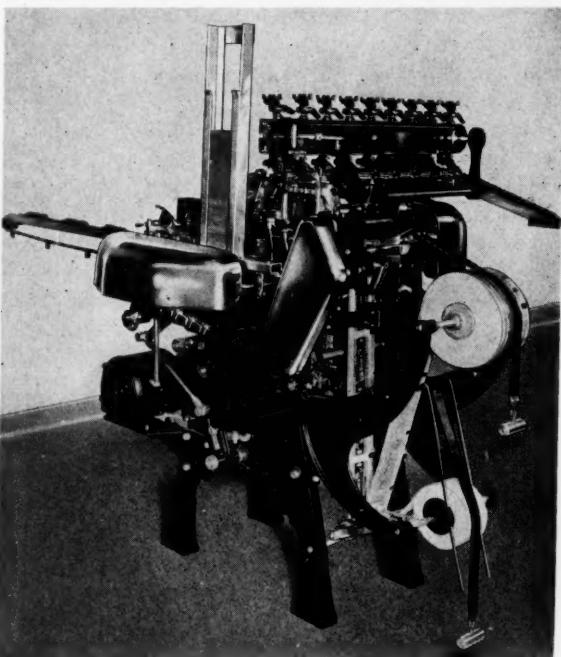
PASTE FILLER

Filling machines made with any number of heads from 1 to 4 have recently been developed by The Vol-U-Meter Co., to fill hot and cold semi-plastic products, such as heavy oils, greases, pastes, etc., into open top containers of all capacities. Hopper, motor and worm head with spouts are assembled in one compact unit mounted on one or two threaded columns to facilitate vertical adjustment for container heights. Elevating or lowering the filling head and changing scale weights are the only



adjustments needed when changing from one size to another. Uniform pressure and even flow are said to be assured by feeding each spout with a separate power driven worm. Flow from spout is ribbon shaped to reduce pyramiding in the container and to prevent air pockets. The filling spouts are "cocked" open manually against spring tension and automatically closed by a solenoid, wired in series with a mercury-tube switch, linked to the scale platform. Scales can be supplied with flat or roller platforms, ample space being left between platform and rear of machine for conveyor, while additional space can be provided by the use of drop wings on each side of the machine. The machine is

equipped with a $\frac{1}{4}$ -hp., 110-volt, 60-cycle, 1-phase dust-proof motor with a speed of 1725 r.p.m.; 2-in. drop forged worms turning at 60 r.p.m.; 75-lb. agate bearing scales with lock screw on beam weight and anti-swing link on counterpoise weight.



WRAPPING MACHINE

Modern Equipment Co. has developed a small machine capable of wrapping candy bars or other small items of irregular shape. Known as the Wrap-O-Matic, the wrapper is said to operate rapidly and neatly, regardless of the texture or delicacy of the product. The wrap is formed, folded and sealed, it is claimed, without pressure of any kind on the surface of the article. The Wrap-O-Matic can be used with or without liner, with or without cardboards. It takes glassine paper, cellophane, foil or any other type of wrapper that can be printed in rolls. Operation and registration of printed matter are controlled by an electric eye that makes possible a high degree of accuracy.

The machine is said to be capable of wrapping candy bars at the rate of 80 to 110 per minute, depending on the speed with which the operator can feed the product to the machine. As the machine is designed primarily for high production, it is made with fixed-sized folding heads and carrier chains. It can be furnished on special order with adjustable heads for packages up to 8 in. by 3 in. by 3 in.



You Get Exactly What You Pay For!

"Why do you charge 5¢ a glass for your lemonade when the other boy charges only 2¢?" asked Mr. Sharp, as he sipped his second glass.

"*The cat fell in his*," answered Truthful Tommy.

* * *

When you're tempted to make an apparent saving by buying cheap glues, remember there's usually a "cat" in the background—even though you don't realize it *at the time!*

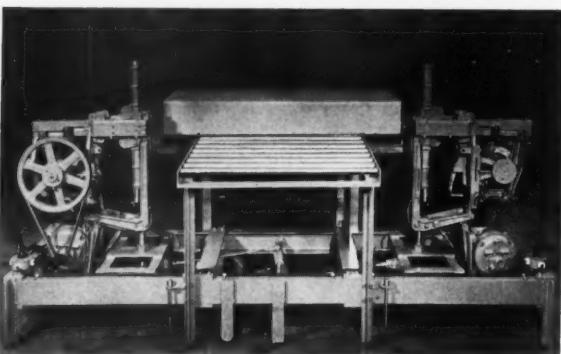
NATIONAL ADHESIVES

DIVISION OF
NATIONAL STARCH PRODUCTS Inc.

820 GREENWICH ST., NEW YORK—CHICAGO—PHILADELPHIA—BOSTON—SAN FRANCISCO—and All Principal Cities

STAPLING MACHINE

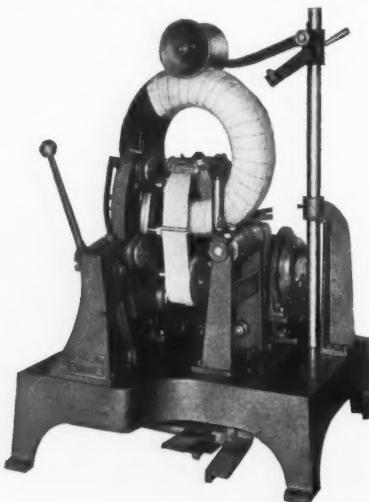
A new "retractable anvil" stapling machine has been developed by the International Staple & Machine Co. The unit has been designed to handle long cartons having a small cross section. Filled cartons are laid flat on



a conveyor, guided and centered between the two "retractable anvil" stapling units so that both ends are securely sealed at the same time. The machine drives and clinches four staples, two into each end of the carton, with each stroke of the machine. The stapler eliminates all lifting and handling of the filled cartons and, it is reported, meets all requirements for secure, quick sealing.

WIRE COIL WRAPPER

A machine designed to wrap coils of wire into a tight-wrap of creped paper or other suitable strong wrapping material has been developed by the Terkelsen Machine Co. Known as the Model 1-C, the unit may be equipped with an edge folder and peripheral strip attachment if desired. A glued wrap is applied by the machine, preventing slippage of the wire in transit.

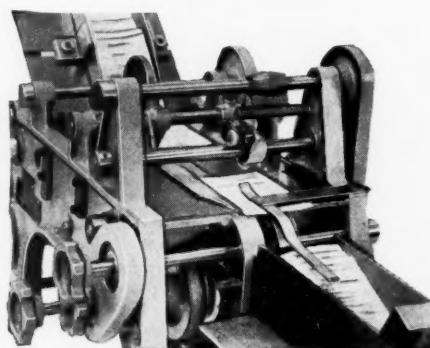


The starting and stopping mechanism consists of a foot pedal for lifting the motor platform to bring the motor pulley into contact with a metal intermediate driver. Release of the pedal applies a brake, stopping the machine instantly. The shuttle assembly consists

of a V-type steel forged shuttle; a paper-roll spindle and a compensating tension device which gives a uniform tension until the last yard of paper is used. It is adjustable to any desired tension. The paper-roll spindle has an effective core-clamp which automatically adapts itself to any reasonable variation in paper-roll cores. Wire-coil feed rollers rotate the wire coil and are driven by endless chains protected by removable metal guards. On each of the two feed rollers are two adjustable upright guide rolls, located close to the wrapping point which prevents the coils from becoming distorted while being wrapped. Coils, at top, are steadied by an adjustable aluminum guide roller. The machine occupies approximately 3 sq. ft. of floor space and is driven by a 1-hp. motor.

CODING MACHINE

For printing code numbers, symbols or identification controls on food, drug, cosmetic and other labels, the New Jersey Machine Corp. has developed a printer known as the Code-O-Matic. The machine is a bench type, portable unit, substantial in construction and operating on the rotary principle. Working from hopper feed, it imprints as many digits or characters as are



desired on the label, offering a selection of 10 digits or 12 letters. The Code-O-Matic works at variable speeds for imprinting up to 250 labels per minute. A special ink is available for printing on foil, varnished or lacquered labels. With minor alterations, the machine, it is claimed, will handle knock-down cartons. The Code-O-Matic is said to be adjustable within three minutes and operates a $\frac{1}{20}$ -hp., single-phase, 60-cycle, 110-volt standard-reducer motor. It is built to handle labels of from $\frac{7}{8}$ in. by $\frac{7}{8}$ in. up to 6 in. by 8 in., printing on any part of the label up to $\frac{1}{8}$ in. of edge.

DISPLAY MATERIAL

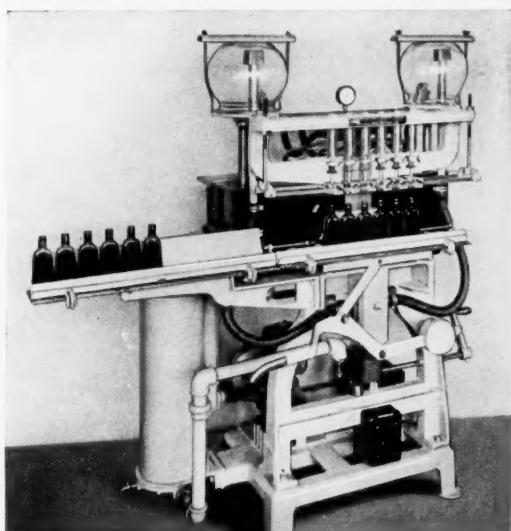
Sherman Paper Products Corp. has announced the development of a new display material known as Nu-Curve. It is available in rolls 72 in. by 15 ft. in nine different colors, while a roll 48 in. wide is available in twelve gloss colors. The material was designed primarily for background and column use and is said to be particularly adaptable for making Roman style columns, with Roman caps on the top and bottom.

PNEUMATIC BUILDS THE WORLD'S

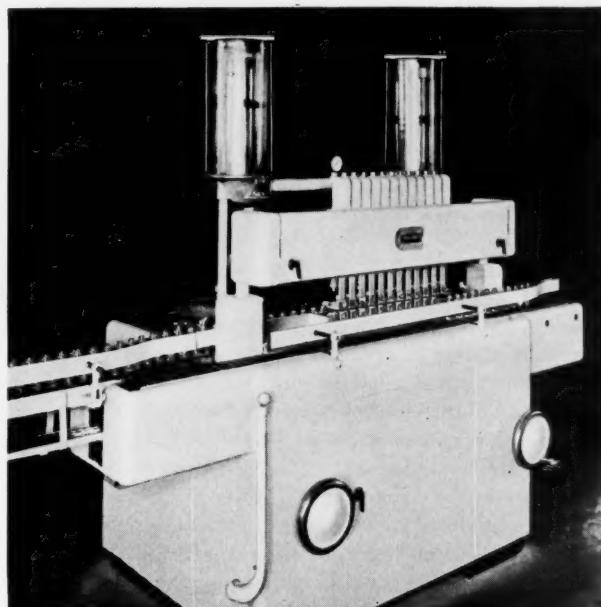


Most Versatile LIQUID FILLERS

The specifications are an indication . . . user endorsement proves Pneumatic's claims for these two fast, flexible, efficient filling machines. United Drug, Siboney Distilling, Walgreen, Wildroot, Mr. Boston, and Chesebrough are some of the bottling leaders using Pneumatic Fillers.



THE SAMCO JR. is a semi-automatic, vacuum filler expressly designed for handling regular finish or AGST finish containers in a wide size range and for water-like, foamy or sluggish products. Size changes take only 10 minutes and the 13 gallon, float valve controlled supply tank with the rugged Beach Russ vacuum pump means steady, trouble-free operation. Standard equipment includes 6 filling heads but unit can be fitted with 10 heads. Speed with one operator is 1 to 7 cycles per minute depending on container size.



THE AUTOMATIC SAMCO has the same effective double bowl overflow system, high-speed filling nozzles and quick size changes. Automatic intake and delivery conveyors eliminate the need for a supervising operator and with the standard 12 filling heads, speeds of 50 to 70 per minute on 1 oz. to 1 qt.

sizes are guaranteed. You can use up to 24 heads if the 49½" long lift plate will take that many containers. Important too . . . there are no moving parts in contact with the liquid being filled.

BULLETIN 100 pictures 38 other Pneumatic packaging and bottling machines. You should have a copy in your information file. Send for Bulletin 100 today!



PNEUMATIC SCALE CORPORATION, LTD.
71 Newport Ave., Quincy, Mass. (Norfolk Downs Station)
Branch Offices:
NEW YORK • CHICAGO • SAN FRANCISCO • LOS ANGELES



For Your Information File

Unless otherwise indicated, copies of catalogs, booklets, etc., mentioned in this department may be obtained without charge by writing to the sponsoring company at the address given.

CHEMICAL COATINGS and their importance to modern industry is the subject of a new all-color, sound movie, "More Than Meets the Eye," released by the Interchemical Corp., New York, N. Y. Chemical coatings—inks, industrial finishes and enamels, textile colors and other protective and decorative materials—are shown in this film to be important sales influences. The film describes the processes and research back of the manufacture of these coating materials and shows how the requirements of the ultimate consumer must be taken into account in the manufacturing operations. The film has been prepared so that it will be of interest to manufacturers of products requiring chemical coatings and to the general public which uses these products. Since much of the picture is concerned with the production and application of industrial colors like printing inks, pigments, finishes and textile colors, there are many spectacular color effects. "More Than Meets the Eye" was produced by Willard Pictures, Inc., under the direction of George Welp of Interchemical Corp. The movie is available for showings to manufacturers, associations or groups interested in chemical coatings.

ILLUSTRATIONS OF CHRISTMAS PACKAGES show how some manufacturers have presented their products in a new booklet issued by the Dennison Manufacturing Co., Framingham, Mass. Titled "14 Ways to Gift Wrap for the Christmas Market," the booklet illustrates and describes 14 holiday packages, each of which utilizes a different type or style of gift package wrap.

"TRANSPARENT WRAPPINGS AND METHODS of Printing Thereon" is the title of a booklet published by Baker Gravure Co., Inc., New York, N. Y. This report was intended solely as a general guide for selecting transparent sheetings and a printing process for such materials. A bibliography is included for those manufacturers who desire more complete information on transparent sheetings.

THE LOWE PAPER CO., Ridgefield, N. J., has issued a new swatch book containing numerous samples of the company's clay-coated folding boxboard, clay-coated litho blanks and other carton stocks. The booklet is so designed as to permit of insertion into a standard filing cabinet.

THE EAGLE PRINTING INK CO., New York, N. Y., has issued a specimen book of its carton inks containing a wide range of color samples printed on both patented-coated and clay-coated carton stock. The use of both types of stock permits of greater accuracy in ink selections, it is claimed. The company has also issued a new folder—the first of a series—entitled "What About the Legibility of Colors?" and containing research data on visibility and legibility of various color combinations for posters, displays and packages.

SHELLMAR PRODUCTS CO., Chicago, Ill., has issued a booklet "Concerning Shellmar," describing the many products manufactured and services rendered by the company. The little volume is replete with technical data which should prove of interest to package purchasing and specifying executives.

THE GOODYEAR TIRE & RUBBER CO., INC., Akron, O., announces the publication of a revised edition of the general information folder on Pliofilm, describing and listing the different characteristics of the various forms of this material.

"A CONSUMER SURVEY OF OPENING DEVICES for Transparent Packages" is the title of a new booklet issued by The Dobeckmun Co., Cleveland, O., based upon a survey of consumer evaluations of various methods of opening cellophane-wrapped packages.

"MAKE PAPER MAKE MONEY FOR YOU" is the title of an elaborate presentation book recently issued by Nashua Gummed and Coated Paper Co., Nashua, N. H. The volume delineates—in detailed text and multiple illustrations—the numerous departments and activities of this firm which produces a wide range of waxed papers, fancy papers, glassines and specialties, gummed papers, sealing tapes and printed transparent cellulose sheetings. Particularly useful are the complete listings of more than a hundred varieties and types of these products manufactured or converted at the Nashua mills. Copies of the volume may be had upon request.

"GLUING TRANSPARENT SHEETINGS" is the title of a booklet issued by National Starch Products, Inc., New York, N. Y. Detailed information concerning various types of transparent sheetings and recommendations for gluing these sheetings are presented.

STEIN, HALL & CO., INC., New York, N. Y., has issued an illustrated folder describing Hallmark burlap tubing as a wrapping material which might be profitably utilized in packing and shipping departments.

NEW FAMILY OF PACKAGES

Created By
J. S. IVINS' SON
with
**STOKES & SMITH
EQUIPMENT**



Installation of S&S machinery at J. S. Ivins' Son, Inc., Philadelphia

Ivins' family of crackers in S&S Transwrap Pliofilm packages within window cartons

*You'll Like the Crackers
and the Packages!*

The plant of J. S. Ivins' Son, Inc., Philadelphia, is one of the oldest bakeries in the country and one of the landmarks of the "City of Brotherly Love."

And through the years Ivins have been famous for their progressive packaging methods. So, when they wanted to market a new family of crackers they chose the latest and best package—Stokes & Smith Transwrap—made of Pliofilm* and enclosed in an attractive window carton, producing an airtight, moisture proof, strong, attractive container.

The S&S Transwrap machine takes the film from the roll, automatically forms the packages, fills and heat-seals them.

Ask about S&S equipment for your requirements. Crackers are only one of many products that lend themselves to this type of package.

* Pliofilm—T. M. The Goodyear Tire & Rubber Co.

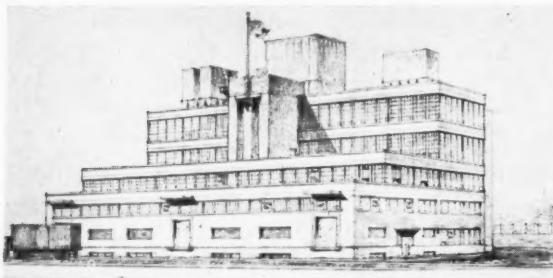
STOKES & SMITH CO.
PACKAGING MACHINERY PAPER BOX MACHINERY
FRANKFORD, PHILADELPHIA, U. S. A.

Plants and Personalities

THE 11TH PACKAGING EXPOSITION AND Conference will be held at the Stevens Hotel, Chicago, Chicago, Ill., April 1 to 4, inclusive, 1941, it is announced by the American Management Assn., sponsoring organization for the annual event. A change was made from the previous tentative dates in order to provide exhibitors with more time for the installation and dismantling of their exhibits. Use of exhibition facilities in the Stevens Hotel, it is pointed out by the American Management Assn., is in line with the expanding requirements of the Exposition and reflects the preponderant opinion expressed at a recent meeting of the Exhibitors Advisory Committee of the Exposition.



1. Above is a view of the newly constructed plastics research laboratory of the Monsanto Chemical Co.



2. The architect's drawing of the projected Resinox plant under construction at Springfield, Mass., adjoining the company's present buildings there.

MONSANTO CHEMICAL CO., Springfield, Mass., has announced that a large new plant for the production of Resinox phenolic resins and molding compounds is being added to its Plastics Division. Resinox Corp., now a part of Monsanto's Plastics Division, was formed in 1930 as a joint undertaking of Corn Products Refining Co. and Commercial Solvents Corp. Shortly after the purchase of Resinox Corp., plans for expansion were made by the company. Construction of a

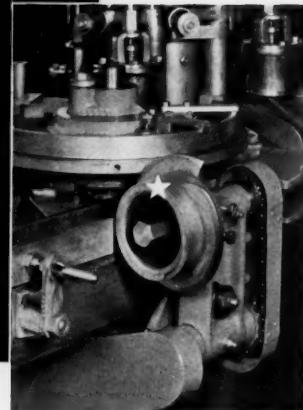
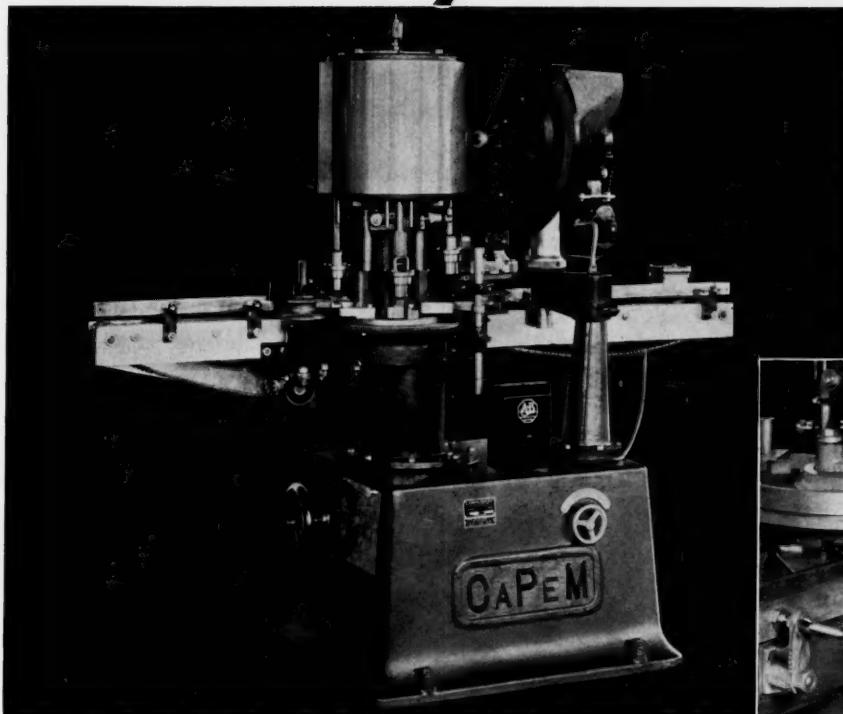
new building (Fig. 1) devoted entirely to research in plastics has recently been completed. In addition, research will continue to be carried on in other plant laboratories in St. Louis and at the central laboratories of the company at Dayton, Ohio. Some time after Monsanto took over the Resinox plant, it was felt that the capacity of the equipment at Edgewater, N. J., was not adequate to meet sales potentials and it was decided to construct a new plant adjacent to the present buildings of the Plastics Division. The new plant (Fig. 2), it is reported, will be a model of functional design, chemical engineering and industrial architecture, with the latest equipment for making plastics.

THE COLLAPSIBLE TUBE MANUFACTURERS Assn. recently held a meeting at Absecon, N. J., electing the following officers and directors: president, Frederic Remington of the Peerless Tube Co.; vice-president, H. S. Darlington of A. H. Wirz, Inc.; director, R. E. Reed of the Standard Specialty & Tube Co.; director, A. W. Paull, Jr., of the Wheeling Stamping Co.; director, T. C. Sheffield of the New England Collapsible Tube Co.

"LIVING LITHOGRAPHY" is the title and the theme announced for an all-industry exhibit scheduled to take place during the month of October, 1940, occupying the entire building of the Philadelphia Art Alliance, Philadelphia, Pa. Sponsored by the Philadelphia Art Alliance in collaboration with the Lithographers National Assn., Inc., New York, N. Y., the objectives of the exhibition have been announced by John F. Lewis, Jr., Art Alliance president, to be as follows: "To honor the tremendous recent strides made by lithography as a commercial technique and to foreshadow its future development, technically and artistically. To provide for the general public, for the lithographic industry and for its clientele, a comprehensive view of recent accomplishments in the field in a way that will effectively dramatize these accomplishments and bring them to the broadest public notice."

PAUL MULLER, who has been branch manager of the New York office of Owens-Illinois Glass Co., has been promoted to the position of eastern sales manager of the Glass Container Division. Mr. Muller succeeds Edward F. Glacken who, as president of Owens-Illinois Distributors, Inc., will devote all his time to the distribution of the company's wares in the dairy field. Clark Rodgers, assistant branch manager of the New York office, has been promoted to the branch management to succeed Mr. Muller.

Here's the Machine Your Bottling Line Needs!



Helicoid worm feed intake

If you have to slow down your bottling line because your capping equipment will not handle liquid filled containers at high speeds—

Or if your cappers will not handle both metal and plastic caps with equal efficiency—

Or if you are losing valuable time changing over from one size container to another—

Then it will pay you to learn about the new Consolidated Capem B-4-F.

Capem B-4-F is the answer to a bottling superintendent's prayer! Its helicoid worm feed handles liquid filled containers at 125 per minute, easily. Chuck spindle extensions are not required. You change over instantly from one size to another by simply adjusting the cap-

ping head by means of an elevating screw.

Capem B-4-F handles any type of cap AUTOMATICALLY—deep caps, shallow caps, metal or plastic caps.

For bottling lines not handling an extreme range of sizes, Capem B-3-F, or one of our standard cappers is recommended. Capem B-3-F incorporates all the features of Capem B-4-F except the quick elevation mechanism for the capping head.

Write for complete information on Consolidated capping equipment. Whether you buy a Capem B-4-F or a single spindle standard Capem, you are assured of the same efficient, cost reducing operation that other leading users enjoy.

C O N S O L I D A T E D P A C K A G I N G M A C H I N E R Y C O R P.



UNION PASTE CO., Hyde Park, Mass., has announced that it is now established in its new plant located at 1605 Hyde Park Avenue. Wider production facilities and increased plant and laboratory facilities are afforded.

CHAIN BELT CO., Milwaukee, Wis., announces the appointment of G. B. Flanigan as New York district manager to succeed W. H. Quinn who died recently. R. T. Steindorf has been appointed district manager of the Chicago office.

MILLARD DEMAREST has been appointed director of sales of the Lumarith Molding Powder Division of the Celluloid Corp., New York, N. Y. Mr. Demarest succeeds William T. Cruse who resigned to become editor of Modern Plastics.

LE PAGE'S, INC. is the new company name of the organization formerly known as the Russia Cement Co. No change has been made in the company's officers, personnel or policy.

C. P. ROBINSON has been appointed as a special representative for the slitters and roll winders of the Kidder Press Co., Inc., with offices in the Graybar Building, New York, N. Y.

MARTIN ULLMAN was re-elected president of the Society of Designers for Industry for the ensuing year at the annual meeting of the association. Other officers re-elected were Frank Gianninoto, vice president; Georges Wilmet, secretary, and George Blow, treasurer. New directors include Egmont Arens and William O'Neil.

SYLVANIA INDUSTRIAL CORP., New York, N. Y., was awarded the trophy for the prize-winning booth at the recent 57th annual convention of the National Confectioners Assn.

THE DU-TONE RIBBON CORP., New York, N. Y., has announced the removal of its plant and offices to 511 East 72nd Street. There has been no change made in personnel.

CONTINENTAL CAN CO., INC., New York, N. Y., has announced the awarding of a contract to the Austin Co. for the construction of a can manufacturing plant in Walla Walla, Wash. Construction is expected to be completed in December.

THE IRWIN D. WOLF AWARDS for Distinctive Merit in Packaging, a feature of the Annual Packaging, Packing and Shipping Exposition, will not be held in connection with the next Exposition, scheduled for Chicago in April 1941, but will be suspended for this year, pending a study of how the Awards should be revised to better meet the newer phases of packaging developments in the future, it is announced by Alvin E. Dodd, president of the American Management Assn., sponsors of the Exposition and the Awards.

The Awards were established by the Association in 1931 at the suggestion of Irwin D. Wolf, vice president of the Kaufmann Department Stores of Pittsburgh, and their purpose has been to stimulate constructive effort in the development of the art of packaging.

"The American Management Assn. believes," Mr. Dodd said, "that package users and suppliers alike widely recognize and applaud the vital part played by the Irwin D. Wolf Awards in the stimulation of better packaging. The Association's decision to suspend the Awards this year is premised on the belief that they should be perhaps modified from their present form. We shall seek a plan by which the Awards may enter upon a new and revitalized role."

Commenting on the influence of the Awards on packaging development, he pointed out that while they accorded due recognition to the protective function of packaging, "the Awards from the outset emphasized the potentialities of the package as a merchandising instrument. In 1935, reflecting the increasing recognition of the vital role played by packaging in promoting the sale of consumer merchandise, the previous Awards classifications, hitherto based largely on materials and types, were abandoned for classifications designed to evaluate the package as a medium for merchandising the product it housed. With only minor changes, these classifications were retained for the four succeeding annual Awards.

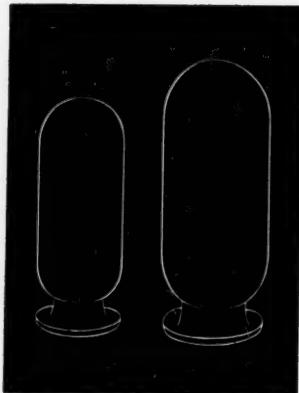
"As the Exposition has grown in magnitude and prestige, it has increasingly assumed the role of spotlighting achievement in packaging, and it is therefore the feeling that with this growth there has come the need for a careful study of how the Awards might be better fitted into these developments."

SILVER AS A PACKAGE COATING MATERIAL

(Continued from page 51)

is more suited for making heavy coatings. It is evident, therefore, that clad metals are better adapted for the preparation of tanks, vessels and chemical equipment used in the chemical industries. The economics of the situation show that it is less expensive to build up a very thin coating by plating, for instance, rather than to roll down a thick one to the point where it may be destroyed.

STANDARDIZED MATERIALS INDEX

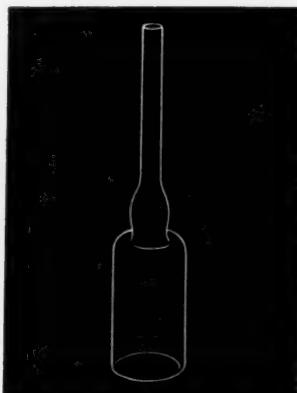


G.643

Display Jars
(Inverted Show Bottles)

Approx. Capacity	Diameter	Overall Height
2 liq. oz.	1½ in.	4 in.
4 liq. oz.	2 in.	4½ in.
8 liq. oz.	2½ in.	6½ in.
16 liq. oz.	2⅓ in.	8 in.
32 liq. oz.	3⅜ in.	9¾ in.
64 liq. oz.	4⅛ in.	12½ in.

Corks are individually fitted into bottles.

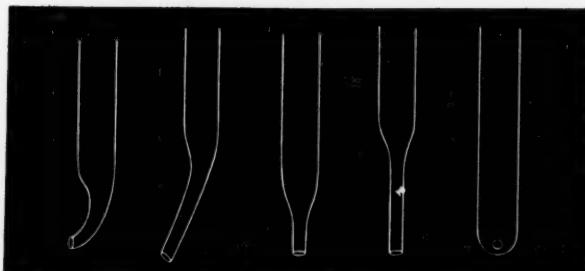


G.644

Reagent Vials

Bodies are molded with sealed-on stems. Generally sealed by melting stem shut. Used to package fine chemicals and volatile liquids. Made to order. Sizes available are $\frac{1}{2}$, 1, $1\frac{1}{2}$, 4, $5\frac{1}{2}$, 7, 10, $15\frac{1}{2}$, $21\frac{1}{2}$ and 35 liquid ounces. Capacities are measured to the shoulder.

Dropper Glasses—Points



G.645

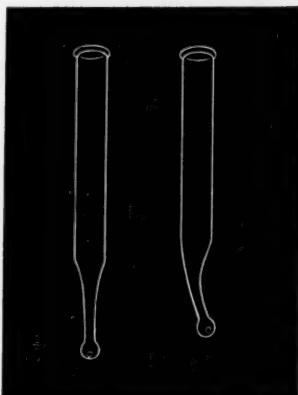
(See also G.646)

G.646

(See also G.645)

Dropper Glasses—Points

Typical finishes of the points of these dropper glasses are shown here. Other types can also be made to order. Outside diameters range from 4 to 11 mm. and body lengths from 19 to 175 mm.



G.647

(See also G.645 and G.646)

G.648

Dropper Glasses—Nipple Ends

This shows the flanged and tooled types of nipple ends on the dropper glasses shown in the two preceding illustrations. Either of these are available on any of the droppers illustrated.

RESEARCH DEPARTMENT
MODERN PACKAGING
CHANIN BUILDING, 122 E. 42nd ST., NEW YORK, N. Y.

Please send me information as to sources of supply of items Nos.

.....
as shown in your Standardized Materials Index.

Name.....

Address.....

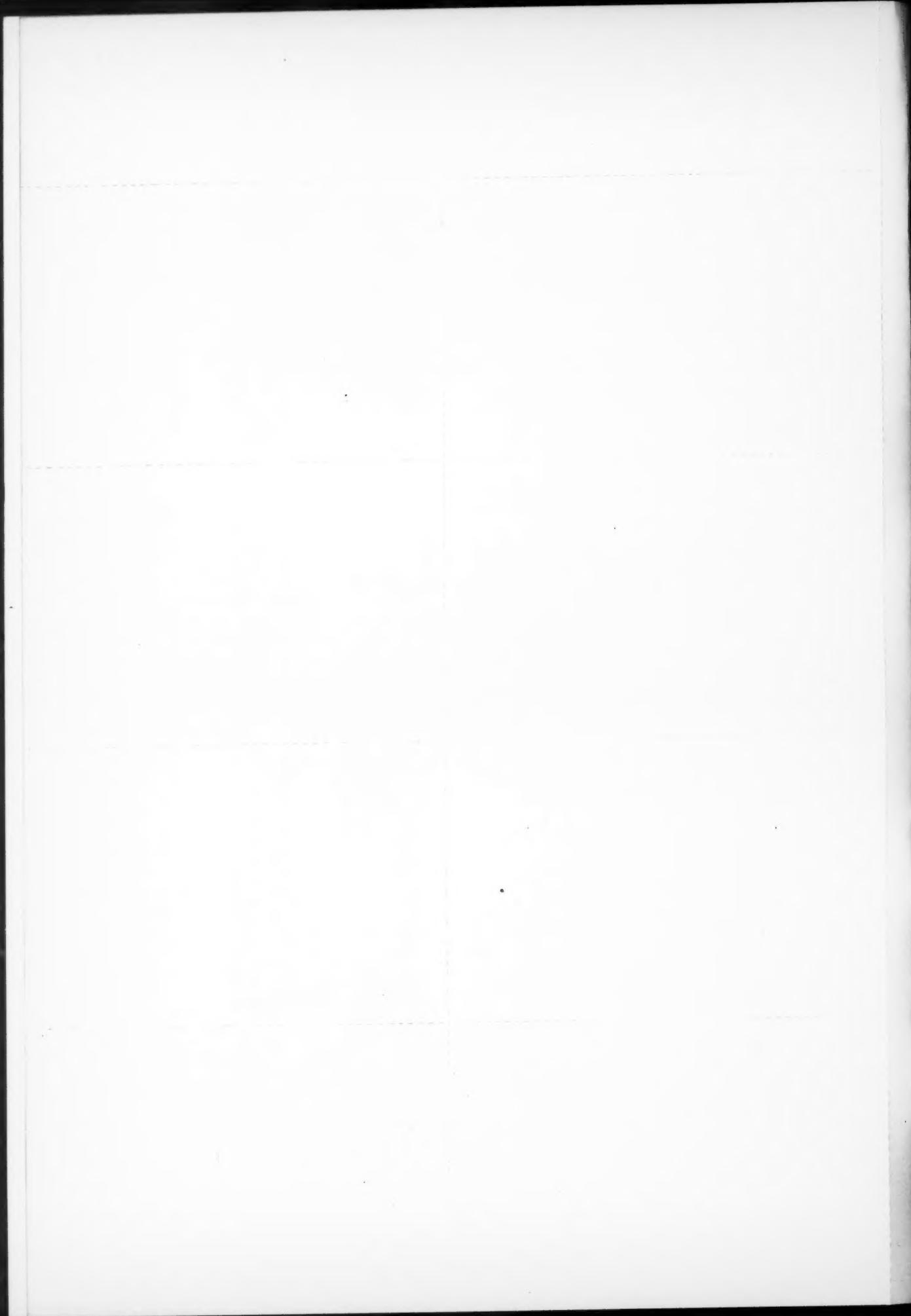
RESEARCH DEPARTMENT
MODERN PACKAGING
CHANIN BUILDING, 122 E. 42nd ST., NEW YORK, N. Y.

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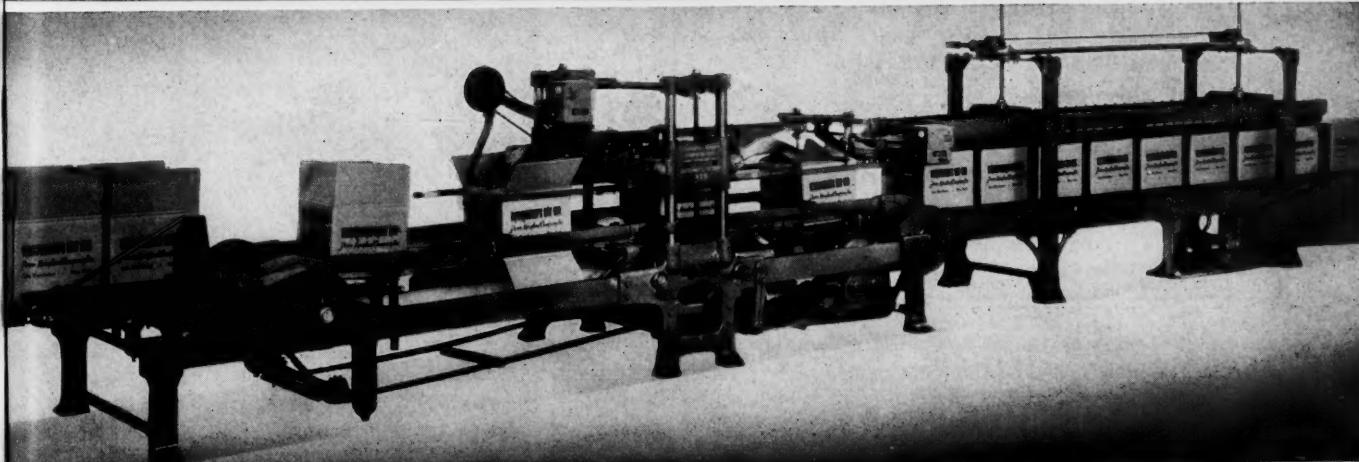
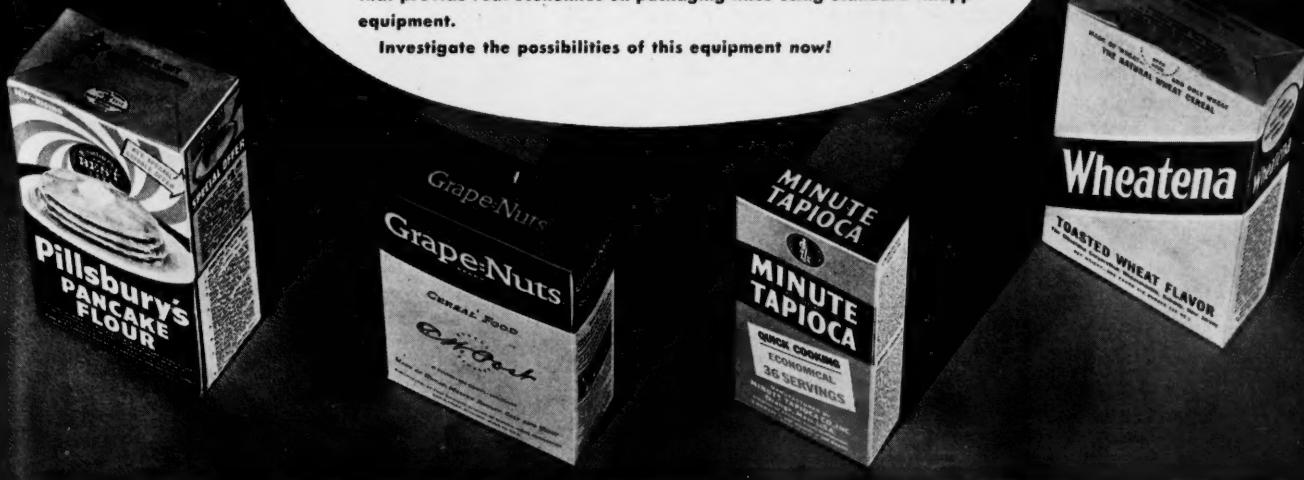


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The vaporization and chemical reduction methods are used for coatings from 5- to 100-millionths in. thick (from one-eightieth to one-fourth of a cent per square foot if silver is valued at 35 cents per troy ounce). These coatings are feasible only if deposited upon glass or a suitable organic material such as a lacquer, plastic, resin, etc. Silver cans, for instance, prepared by vaporization or chemical reduction are first coated before assembly with a suitable organic film. This organic film is selected on the basis of cost, adhesiveness, flexibility and suitability as a basis upon which the silver can be satisfactorily deposited. It must give complete protection to the steel since, as one can recognize immediately, coatings on the order of a few millionths of an inch thick are not likely to be pore-free. Galvanic corrosion would then exist between the steel and silver unless the steel is properly protected. Bottles, of course, do not require a lacquer coating prior to silvering by the chemical reduction or vaporization process. The silver can be deposited directly on the glass surface.

The heavier coated or returnable containers are usually prepared by electroplating and the coating on these must be pore-free. It has been found feasible to silver-electroplate shipping drums, barrels, kits, etc., in a pore-free condition with as little as 0.001 in. thickness of silver or a silver value of 28 cents per sq. ft. with silver at \$5.10 per avdp. lb. These containers are best prepared by plating the cylindrical shell and the ends separately before assembly. This insures a silver coating in the crevices of the joint where corrosion is most likely to take place. The plated material will withstand the necessary lock-seaming operations.

It has been found that in some cases silver-plated steel can be deep-drawn to a desired shape without damage. This permits plating of flat stock which decreases handling and plating costs and is much more satisfactory from the plating standpoint.

There are a great many problems which arise in the development of silver-lined containers. For instance, the design of both the container and fittings, the materials to be used, the type of joints to be employed, etc., all present different problems.

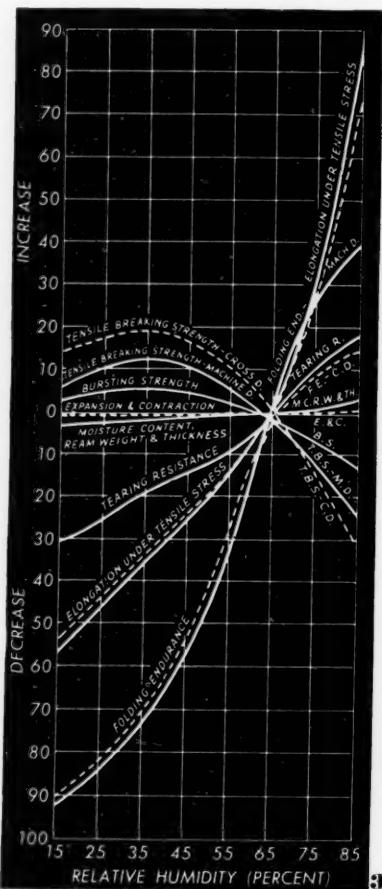
HOW HUMIDITY AFFECTS PAPERBOARD

(Continued from page 42)

Note that as the sheet becomes drier, tearing resistance, elongation and folding endurance are very much reduced, but that they increase as the sheet becomes more moist. In other words, some qualities improve under dry conditions up to a certain point and decrease quickly under moist conditions, whereas other qualities decrease very rapidly under dry conditions and increase under moist conditions. This is the only reason why a shipping container does not fall apart under very

dry and very moist conditions. In other words, a shipping container with a very high moisture content will have a low tensile test, but its tear, folding endurance and elongation or stretch tests will all be very high. The entire character of the box may change, but some strength factors increase to take the place of those reduced.

A careful study of the folding endurance curves will illustrate why any board will crack if stored under very dry conditions. Users of boxes and paper should give these factors more consideration. Many big users now take the precaution to keep their store rooms at a reasonably uniform relative humidity. All users of paperboard products should take precautions to prevent their stock from being exposed to over dry or over moist air. For best results, the relative humidity of the storage place should be maintained between 35 per cent and 55 per cent.



Many large users take special pains in this respect during the winter by allowing a certain amount of steam to escape into the warehouse or by some similar method. Contrary to general belief, boxes that are old do not become dry. They become dry only when exposed to dry air for a sufficient period of time. If the air in which the boxes are stored is moistened by an increase of the relative humidity, the board and the boxes will usually regain all of their former qualities.

RECENT DEVELOPMENTS IN PACKAGE INKS

(Continued from page 41)

working properties on the press and in smoothness of lay. In line with the current demand for gloss merchandise, inks have been developed which give relatively good gloss even on more inexpensive stock grades.

One of the more important improvements in the shelf appearance of printed cartons has come from the development of scuff-proof inks. Due to severe abrasion in shipping and handling, it was not unusual for inks to be smeared and even completely removed in some areas. By judicious use of the newer synthetic resins and other changes in formulation, scuffing has been reduced to a minimum.

From a production standpoint, another new development is just beginning to be felt. This development is centered around the use in carton printing of the heat-dry inks, originally introduced for publication purposes. The use of the heat-dry principle very markedly increases the speed of drying and is particularly advantageous in operations where the printed stock is to be submitted to a forming operation after printing. In some cases, forming is now being carried out immediately after the printing operation without any waiting period for ink to dry.

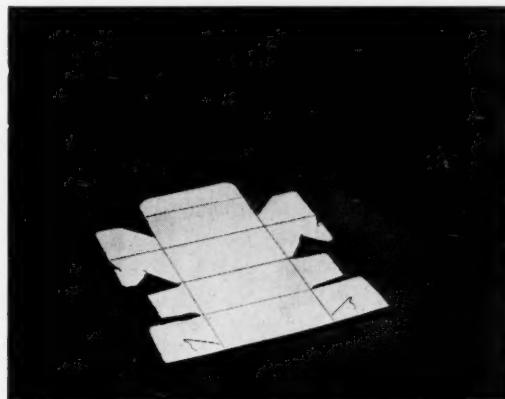
Closely related to carton printing is the growing use of printing on corrugated stocks and other relatively inexpensive packaging materials. Because of the rough absorptive nature of these stocks, printing was formerly done only for informative purposes. However, inks are now available with sufficiently good printing properties for these inexpensive stocks to permit decoration and many interesting and well-designed packages are being used. Here, again, improvement has come chiefly through the use of synthetic resins to formulate vehicles which will lie on the surface of rough, inexpensive, absorptive stocks, rather than sinking into the stock.

Foil Wraps and Cartons

Extensive use of foil-laminated paper for protective and decorative purposes has introduced new printing problems. When foil is used in limited quantities, the old slow methods of typographic printing are satisfactory. In fact, in the older uses of foil (such as in the gum and cigarette trades), the printed message has been carried on paper outside wrappers. The development of printing techniques, which would allow high-speed production of printed foil wrappers, has revolved largely around the rotogravure process.

In developing inks for this process, the ink maker has drawn heavily on synthetic coating materials and inks of excellent printing properties, high brilliance, firm adhesion to the metal surface and with excellent speed of drying have been developed. Vehicles for inks of this

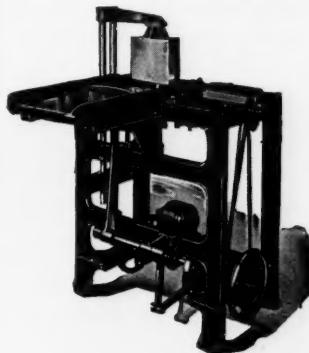
Economical Packaging



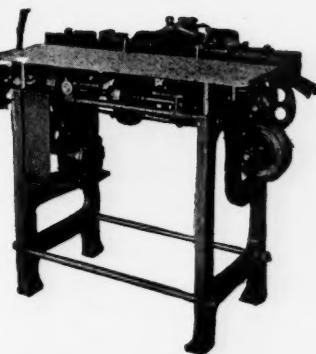
is the MODERN way!

Years ago, cartons could be set up by hand but the selling price has been lowered to such an extent it is now almost essential to package inexpensively with machines.

The photograph above shows the die cut "Peters Style" carton which is the type of carton handled on these machines.



Left: This PETERS JUNIOR CARTON FORMING AND LINING MACHINE sets up 35-40 cartons per minute, requiring one operator. After the cartons are set up, they drop onto the conveyor belt where they are carried to be filled.



Right: This PETERS JUNIOR CARTON FOLDING AND CLOSING MACHINE closes 35-40 cartons per minute, requiring no operator. Cartons enter machine on conveyor belt as open filled cartons and leave machine completely closed.

Send samples of your cartons and ask us to recommend equipment to meet your specific requirements. Your inquiry will have prompt attention.

PETERS MACHINERY COMPANY
GENERAL OFFICE AND FACTORY
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type consist mainly of solutions of gums, synthetic resins, cellulose esters and plasticizers in organic solvents. A very nice balance between the various solid ingredients and careful control of the solvent power and evaporation rates of the solvents is required for satisfactory work.

The most desirable techniques for printing the transparent sheet materials have been very similar to those applied to foil, although, here, one cannot overlook aniline printing which offers certain advantages in high-speed production on non-absorptive surfaces.

Metal Lithography

The functional merits of the metal container, with its perfect resistance to the deleterious effects of light and air, its high resistance to mechanical shock and its tamper- and substitution-proof qualities, have long been recognized. It has only been recently, however, that the smooth, unbroken surfaces of metal containers have taken their proper place from a decorative standpoint. It is true that metal lithographing has long been practiced. Tobacco and talcum powder tins have been lithographed for years. In spite of this, the range of colors and decorative effects have been comparatively limited. Recently there has been a host of newcomers, using lithographic metal containers under widely varying conditions and with a practically unlimited range of colors and color combinations.

There were serious difficulties and limitations in the old metal lithographing process. The vehicles of the inks formerly used were composed chiefly of bodied vegetable oils. They were by no means satisfactory in respect to adhesion. The forming operations carried out after lithographing the flat metal frequently scratched, cracked and even completely removed the ink from some areas. The long period of baking at high temperatures, necessary to bring about the ultimate drying of the ink, caused marked changes in many pigments, thus limiting the designer's palette. Few, if any, of the old inks were satisfactory for food containers where the contents were subjected to the heat and moisture of sterilization after filling and closing.

Within the last few years, however, metal lithographing inks have undergone an almost revolutionary change. To a very large measure, the difficulties listed above have been overcome and, at the same time, the inks have been improved in smoothness, gloss and general appearance. This revolutionary change has been based almost entirely upon the substitution of synthetic resins for the oil vehicles of a few years ago. At the same time, the gradual but extensive expansion of the color industry to include many pigments in shades previously unsuited for metal lithography has markedly increased the range of available colors.

A rather wide variety of resins may be used in metal lithographing inks, depending on the use of the material and the kind of equipment employed. In general, soft oil-modified resins are used without solvent and hardening occurs during the baking procedure. This is in contrast with the heat-dry inks whose vehicles consist

mainly of solutions of hard resins in organic solvents and which dry by evaporation of the solvent.

From a production standpoint, these new inks have effected advantages in ease of manipulation on the press, reduction in the drying time and improvement in the ease of handling of the finished lithographed sheets because of rapid and thorough drying.

Today it is not uncommon to see large metal containers for such products as lubricating oils and floor polishes with large unbroken areas of bright light colors and showing sharp lines of demarcation between the color areas. In other cases, packages which involve extensive deformation of the metal during fabrication of the container are commonly used and the inks show no sign of disruption in the deformed areas. As a corollary of this situation, the forming machinery is being operated at higher speeds and with deeper draws.

Many food product containers, particularly for meats which formerly carried paper labels, are now lithographed in brilliant colors. Bottle caps are lithographed in an almost unlimited range of colors and retain their brightness and integrity of film through both forming operations and the severe conditions common in the cooling of beverages.

General Problems in Packaging Inks

Wholly aside from problems of production and the general demands that printing inks shall faithfully reproduce from the printing element, certain special demands are placed upon inks for use in the packaging field. Some of these demands have been only partially met, but the ink maker is constantly aware of them and is giving every effort to meet them. We have already mentioned the fact that inks for packaging purposes must have a high degree of resistance to abrasion. Inks possessing this quality to a remarkable degree have been developed. It is still true, however, particularly in the case of certain types of coated stocks, that abrasion resistance is far from perfect.

One of the most important qualifications for printing inks to be used with food products is that they shall be free from odor. Printing inks have long been characterized by a distinctive odor arising from the vehicle and driers used in their composition. Frequently this odor was so prominent that it would contaminate food products even after long periods of drying and free exposure to the air. Today, through the use of synthetic resin vehicles and through proper handling of inks in all stages of manufacture, essentially odorless inks are available.

Since most packages may be subjected to long exposure to light, particularly in the case of window displays, light-fastness has always been an important requirement of package inks. There has been a steady improvement in the light-fastness of colors until today one may obtain almost a complete range of shades with high degree of light-fastness. The designer should bear in mind that there are still a few gaps, however, and the purchaser must remember that with few exceptions light-fast pigments still command a premium.

Most package users have become conscious of the principle that a package should retain its appearance and should continue to deliver its sales message throughout its period of life in the hands of the ultimate consumer. This has given rise to serious problems in the case of packages whose contents might be deleterious to ink when accidentally coming in contact with it. This situation applies to many toilet articles containing alcohol, water and essential oils which tend to damage labels and other printed matter. It applies also to such commodities as soap powders which are used from the package. It also applies, to some extent, to packages which may be contaminated with the contents during the packaging operation. This kind of requirement is handled by the development of non-bleeding inks, alcohol-proof inks, alkali-proof inks, etc.

Packages, by their very nature, place new and unusual demands on inks. In many cases, the purchaser of packages, who overlooks this fact and allows the use of ordinary run-of-the-mine inks on this package, will be doomed to disappointment. Particularly during design or redesign of a package, the printer and the ink maker should be brought into the picture.

FABRICATION OF VINYL SHEET PACKAGES

(Continued from page 54)

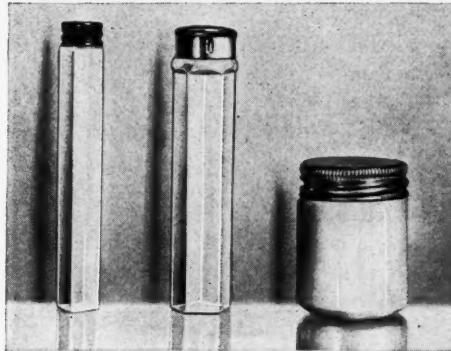
These sheets can also be stamped or punched at room temperatures at speeds of from 10 to 100 pieces per minute, depending upon the thickness of the stock and the perfection of the edge desired. Dies should be designed to hold the stock as near as possible to the cut. It is desirable, too, that the cutting edge of a shearing or stamping die have the double-shear action of a chevron (vertical "V") knife in order to compensate for the tendency of a single-edge shear to move laterally.

Drawing, Swaging and Cupping

Copolymer vinyl resin sheets can be drawn, swaged or cupped satisfactorily by either the "wet" or "dry" method. The distinction between wet- and dry-working concerns the medium in which the stock is preheated prior to its insertion in the forming die. Ordinarily, the die mold is not heated. Swaging, in general, permits much deeper draws than can be realized by simple embossing methods.

Dry swaging is usually used in cases where only shallow draws are required. In this process, the sheet of the desired size is heated on a clean platen surface. In the case of steam-heated equipment, the platen is generally padded with a layer of insulating material in order to reduce the rate of heating. When the resin stock reaches a uniform temperature—in the neighborhood of 70 to 90 deg. C., depending upon its thickness—it is quickly inserted into the cold swaging mold. The mold is then closed and subjected to pressure as rapidly as

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possible. The material is not allowed to chill appreciably before it has been forced into conformity with the mold surfaces, but after the mold is closed, it can be cooled with a stream of cold water or air.

In wet swaging, the sheet is supported on a clamp of the proper design. The entire assembly is immersed in hot water at a temperature of 90 to 100 deg. C., and, after thorough heating, is withdrawn. In withdrawal, care should be taken that the shallow ladle-like container, defined by the upper clamp member and the sheet, carries hot water to the swaging mold. The clamp and sheet assembly fit into the open mold which is then closed rapidly in the same manner as for dry-swaging. An improved surface finish is obtained if mild white soap flakes are added to the heating water.

Rolling and Bending

The sheet stock can be formed by wrapping it around mandrels of almost any desired cross section or shape. For best results, the sheet is first warmed to a temperature of between 75 and 90 deg. C. before rolling it onto the mandrel surface. After the warm sheet has been formed properly on the mandrel, it is cooled to room temperature while held in place.

Blowing

Like glass and certain other plastics, it is possible to form vinyl resin articles by blowing. In this process it is desirable that the sheet be easily separable from the flash produced. In order to do this, special compounds involving the use of solid plasticizers or other modifiers can be supplied. The sheet material should preferably have a press-polished finish on one side and a matte surface on the other. The matte-to-matte contact between the two sheets charged into the mold minimizes adherence between the sheets during that part of the cycle when the sheet is heated prior to blowing.

Fastening

Vinyl plastic sheets can also be metal-stitched, solvent-sealed or heat-sealed. The possibility of using any of these fabricating methods broadens the plastic's adaptability. In all cases, joints are strong. Solvent-sealed and heat-sealed joints are completely waterproof and very resistant to the transmission of moisture vapor. Metal-stitching makes possible the use of these sheets in conjunction with cardboard or other material and, in fact, one type of transparent candy box employs this combination with excellent results. It is interesting to note in connection with this box that the vinyl plastic sheets only 0.0075 in. thick replaced other plastic sheets 0.010 in. thick at no loss in either strength or rigidity.

Articles made from this sheeting can also be coated with lacquers, marked with wipe-on paints or printed. Printing is usually done on matte-finished sheets which are then used either without further treatment or over-laminated with vinyl resin film. A simultaneous press-polishing and laminating operation results in a glossy protective surface over the printing, thereby assuring complete permanence.

PERMEABILITY OF PACKAGING MATERIALS

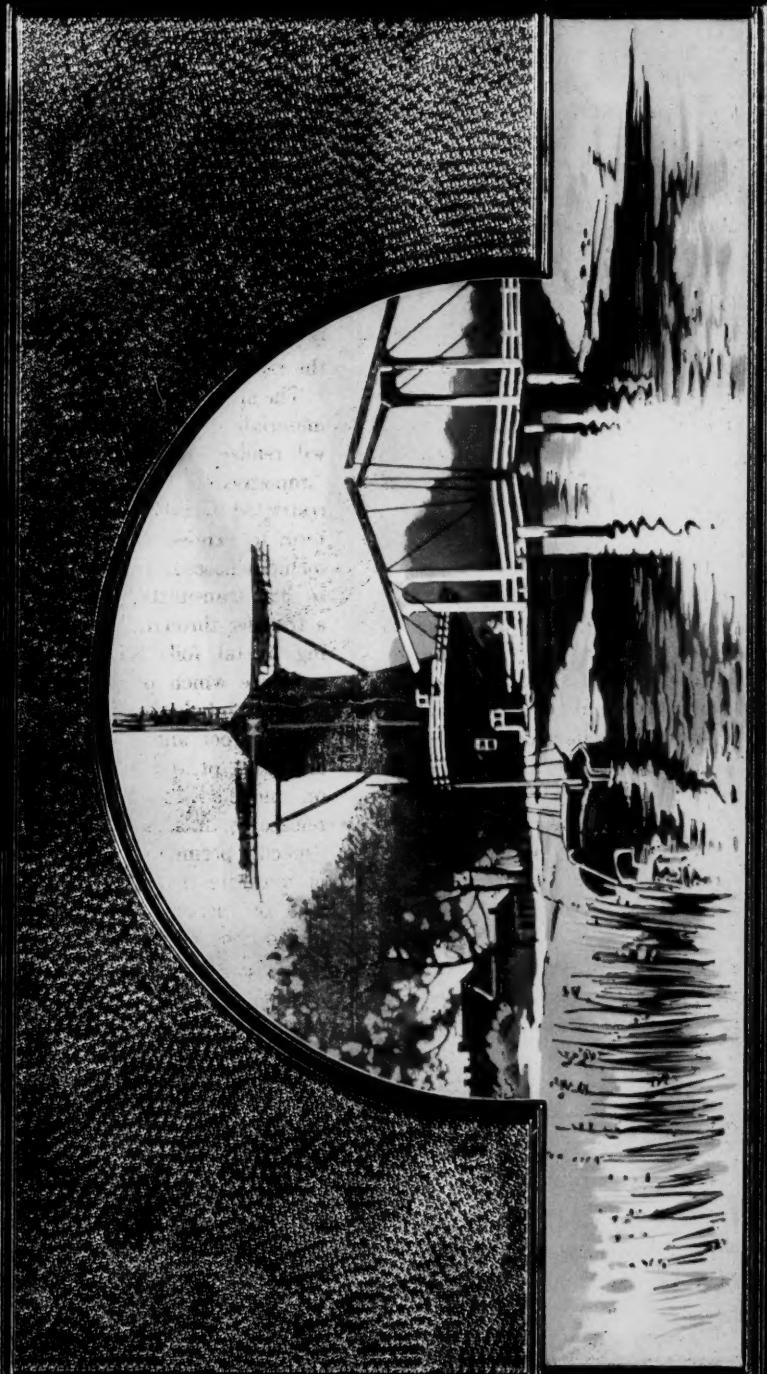
(Continued from page 35)

A $\frac{1}{4}$ -lb. package of tea packed in a foil wrapper measures 3 in. in each dimension. The external area is 54 sq. in. A 1-lb. package of tea measures 4.75 in. in each dimension, giving an external area of 128 sq. in. Thus, four times as much tea can be packed with an increase of only 2.4 times in wall area. However, since we are speaking of metal foil packages, the seams become the important factor since the foil itself, except for pinholes or fractures, shows no permeability to moisture. In the $\frac{1}{4}$ -lb. package, the total seam length is 15 in., compared to 24 in. in the 1-lb. package or in the ratio of 1 to 1.6.

The specific permeability to moisture of a number of materials has been investigated. Scientific readers will realize that our use of the terms "permeable" and "impermeable" is not strictly in accordance with the restricted technical use of such terms. We use the term to express the total passage of moisture, which includes passage through openings, if any, in addition to that transmitted by true permeation, which means a transfer through the material itself. Strictly speaking, metal foils have zero permeability, since any moisture which passes goes through actual openings, such as pinholes or fractures, in the foil. On the other hand, paper and cellulosic films show actual permeability, a process which involves moisture absorption on one surface, diffusion through the material and release at the other surface. By our use of the term "specific permeability of materials," we mean the rate of moisture passage through the material itself as a wall or membrane, not complicated by the factors introduced by package forming.

The specific permeability was measured in this way. A glass container holding a drying agent (Activated Alumina) was sealed by closing with a piece of the material to be tested. This closing membrane was sealed to the upper and open edge of the container by means of a non-permeable adhesive wax. The closed container was weighed and placed in a humidity cabinet maintained at 95 per cent humidity. The container was weighed at intervals to measure the moisture passing through the membrane and absorbed by the drying agent, as indicated by the increase in weight.

Table 1 shows the results obtained on a variety of materials which were selected at random with no attempt to select perfect specimens of each kind. The results are reported on the basis of what would happen if we had used 1000 sq. in. of test surface with dry air on one side and moisture-saturated air on the other side. Since many of the materials shown in Table 1 are often used in combination, composite films, as shown in Table 2, were also tested with the results shown.



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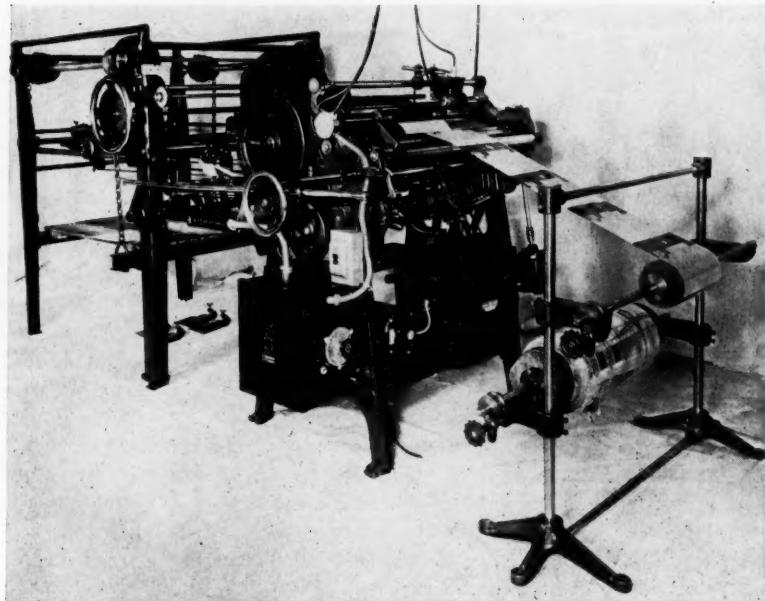
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Following this work in single and composite films, tests were run on packaged cigarettes which introduced other factors. The tests could not be run with dry air inside the packages and moisture-saturated air outside, or a 100 per cent humidity differential, since the packaged cigarettes already were at equilibrium with air at a humidity of about 60 per cent to 65 per cent. However, since the data in Tables 1 and 2 are presented on the basis of 1000 sq. in. of surface tested with dry air on one side and moisture-saturated air on the other, the data in Table 3 are presented on a comparable basis.

Suitable correlation is shown by the data in the three tables when it is borne in mind that the greater part of the moisture passing into the cigarette package passes via the folds, except when the folds and seams are sealed. When the seams are sealed, then the moisture which passes, or the permeability, is chiefly a function of the packaging material itself.

The order of the package listing in Table 3 is that of decreasing permeability, so that if we assign 100 per cent as the permeability of the first package, the following comparisons are possible: Packages 2 and 3 vary only in the fact that composition foil was used in package 2 and aluminum foil in package 3. The respective permeabilities are 80 per cent and 69 per cent. Packages 4, 6 and 8 vary as follows: The moisture barrier in package 4 is sealed cellulosic film, in package 6, it is sealed composition foil and in package 8 it is sealed aluminum foil. The respective permeabilities are 43 per cent, 25 per cent and 10 per cent. Packages 5 and 7 differ only in that composition foil was used in package 5 while aluminum foil was used in package 7. The respective permeabilities were 32 per cent and 22 per cent. While a comparison of package 3 with package 8 shows a decrease in permeability by sealing aluminum foil from 69 per cent to 10 per cent, it seems fair to point out that package 7 is package 3 with a sealed cellulosic jacket and in this case the decrease of permeability was from 69 per cent to 22 per cent. The absolute amount of moisture that enters either package 7 or 8 is small and circumstances of use must determine the necessity of using a sealed aluminum foil instead of a sealed cellulosic jacket.

Cigarettes exemplify products which are particularly susceptible to moisture changes. If packages of such products are open at any point, then all of the material in the package readily undergoes moisture changes. There are products, however, which are not so susceptible to moisture changes; butter is a good example. In the case of such products, sealing is unnecessary since the wrapper will protect the outer surface of the butter. Fairly broad laps at the seams in butter wrappers are satisfactory, since they do not permit deleterious changes to take place in the butter. The small changes that do occur are localized and negligible.

Other laboratory work on cigarette packaging, which permits accurate comparisons, is available. In these tests, the actual moisture in the cigarettes was determined at the start and end of the test period. Natu-

rally, the cigarettes actually used in the exposure test could not also be used for the preliminary determination of moisture content. Consequently, cigarette packages, taken from the same cartons from which packages for the exposure test were taken, were removed at the same time. The previous history of comparative packages was identical; hence it seems fair to assume identical moisture contents. Moisture was determined by distillation—with benzol, using the well-known distillation trap for water specified in the methods of the American Society for Testing Materials. The data obtained are shown in Table 4.

The data in Table 4 indicate the importance of sealing seams in the foil wrapper. It is interesting to note that the use of a sealed, lacquer-coated cellulosic jacket is another means of avoiding the passage of moisture through the foil seams. While this method, according to the table, is not so effective as foil seam sealing, nevertheless in many cases it is easier and simpler to seal such film jackets than to actually seal the aluminum foil.

Aluminum foil as used in packages such as are being discussed is mounted on paper. Data, which will not be presented, indicate that the manner of adhering the paper to the foil is of little moment; that is, paper adhered by multiple glue lines is just as satisfactory in performance as that assembled by an all-over cement mounting.

In connection with the sealing question, the manner of sealing has also been studied. Foil-to-foil sealing has been compared to foil-to-paper and with paper-to-paper sealing. A slight advantage is shown by foil-to-foil sealing, since in the other two cases some moisture apparently may enter caused by diffusion along the paper membrane.

SPECIFICATIONS FOR THE PACKAGE PURCHASER

(Continued from page 39)

Another example was the comparative study of special slotted corrugated boxes and regular slotted boxes with pads that resulted from a consideration of the specifications for corrugated boxes. The result was the adoption of many special slotted corrugated boxes at a saving in cost and greater convenience at the packaging lines.

The increasing number of technically trained men, especially of engineering training, that are entering the packaging side of industry presages an increasing interest in detailed written specifications on the part of users of packaging material. There is also a noticeable tendency for suppliers to use technically trained salesmen or, in some cases, to supplement salesmen by technical men from plant or laboratory. Borrowing from the Greek—"When engineer meets engineer—they write a specification." They both talk the same lan-

Answers to questions on page 10

and answer to your advertising problem on how to reach the leading packagers quickest and most economically:

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2. 1941 PACKAGING CATALOG

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The supplier who is properly equipped with technical men and facilities will find an advantage in dealing with users who base their purchases on detailed specifications. The tough customer for any supplier is the man who "buys on price." He is difficult to impress with the features of quality that the supplier offers. The user who bases his purchases on written specifications is much more likely to be aware of quality features and to give them full weight. Also, this same user is much more impressed by technical data and services than by plain "sales talk."

The supplier gains also by the avoidance of misunderstandings when written specifications provide the basis of purchases. The cooperative effort of writing the specifications will automatically raise and settle important points that might otherwise be overlooked and cause costly errors.

The user of packaging materials will see many uses for written detailed specifications. The first, the most obvious use, is in clarifying purchases. With detailed specifications available, the Purchasing Department is greatly aided in procuring the exact items required by the Packaging Department. The written specification is useful within the plant as a record of the item. At The Upjohn Co., specifications are written and kept on file by the Packaging Development Laboratory where they form an important part of the technical data used in research and development work on packaging materials. The specifications are also distributed to the various centers that are directly affected by the quality of the material. Immediate access to detailed information settles many questions and allows more intelligent handling of the material.

A sample specification is in order at this point to indicate the extent of detail that has been found necessary to make a specification serve its purpose. Although any description of an item is a specification of sorts, it is of little use unless sufficiently detailed. The guiding principle is—*specify those characteristics in kind and quantity that distinguish acceptable material from undesirable material*. The amount of detail will, of course, vary with the item. Sheet tinfoil squares will require very little detail whereas a molded cap will require a great deal more. A sample specification sheet for a 24-mm. black molded cap, as issued by The Upjohn Co., is illustrated.

The writing of the specifications for molded caps illustrated how the cooperative effort of supplier and user on the technical details results in an improved item of packaging materials. In the writing of the specifications, the matter of the torque strength to be specified arose and was settled only after much laboratory work and many conferences with suppliers. The result was a considerable improvement in the strength

of caps used. It is believed, modestly, that this effort contributed benefits to all users of molded caps.

The data for specifications are so unorganized on an industry basis that great individual effort by the user is required. The writer of specifications will look in vain for any such compilation of accepted standard specification as are available in the chemical and pharmaceutical industry for chemicals. One explanation for this contrasting condition is that the chemical industry has long been based on a science and has been staffed by technical men. As noted previously, technical men are specification conscious. The packaging industry is just beginning to attract technical men and is scarcely yet to be considered a science or even "scientific" on the whole. It is with the hope of applying more of the "scientific" to packaging that the virtues of written specifications are expounded here.

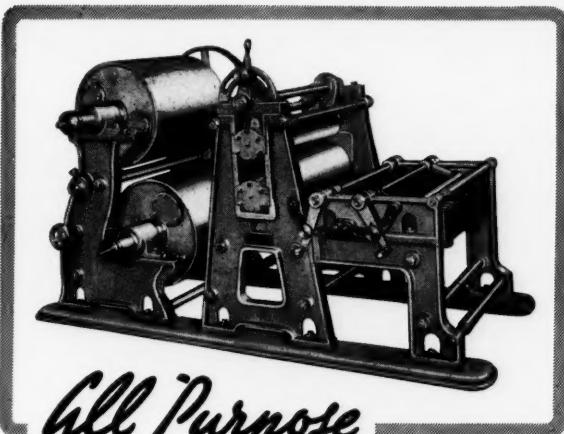
The available published specification data are found mainly in:

1. Magazine articles. The inserts of specification data appearing monthly in *Modern Packaging* are an example.
2. Trade association publications. The paper industry makes some data available through their trade association and *The Glass Container Assn.* is very helpful in providing good data on bottles.
3. Government specifications. There are several published specifications on items that are usually considered packaging materials available through the Superintendent of Documents, Washington, D. C.

However, none of these sources provide the extent of data that is required to place all packaging materials on a specification basis. Companies desiring the required data must supplement the above sources with information from the supplier and from their own laboratories.

The scarcity of specification data is accompanied by a lack of testing methods for determining the quality of packaging materials. This again puts a burden of individual effort on the writer of specifications. The result is the need for laboratory personnel and facilities as an aid to the developing and writing of the specifications, which is well recognized now by many of the larger companies. However the extent of this recognition is widening and is paralleled by the recognition of the value of technically trained men to the packaging side of industry.

The use of laboratory facilities and technical men is not enough to place specification writing on a sound foundation. The specification should be standardized and accepted by the industry. Methods of test that are acceptable to user and supplier should be developed and adopted generally. This phase of the work is distinctly a job for an association of interested parties and could well be the major program of the Packaging Institute or other groups or organizations having packaging as their main interest.



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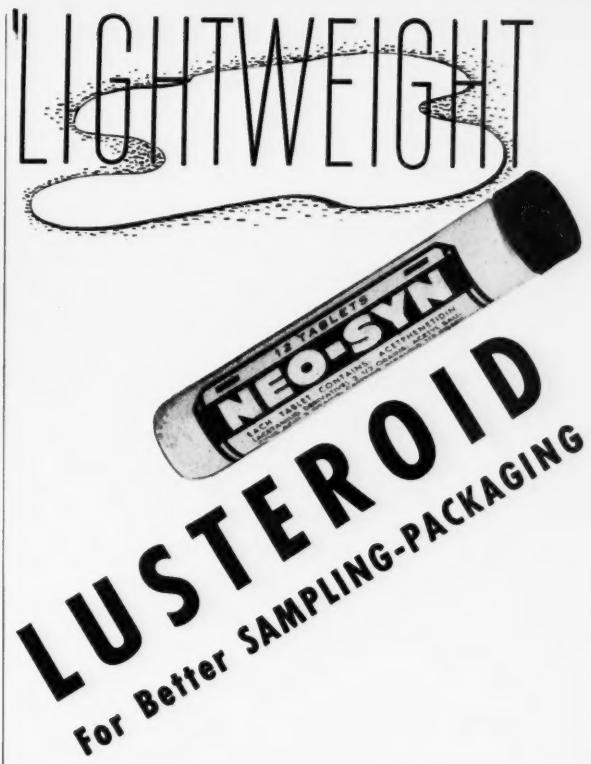
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To summarize, The Upjohn Co. has obtained benefits in improved packaging material through the use of written specification. Comparable benefits can be obtained by any packager who will apply written specifications in a similar manner. Additional convictions that have evolved from this particular effort are stated briefly as follows:

1. Supplier and user both benefit from written specifications.
2. The work of writing specifications is a mutual endeavor of user and supplier through their technical men and facilities.
3. The increasing use of technical men by the industry indicates a trend toward a more scientific treatment of packaging material.
4. The need is apparent for a cooperative effort through the trade associations of packagers to develop specifications and test methods acceptable to all.

It is believed that the packaging industry in general will recognize the means for improving materials that is afforded through the general acceptance and use of written detailed specifications.

NEW TECHNIQUE FOR MEAT LOAF WRAPPING

(Continued from page 33)

All parts, except the thermostat and wooden handle for the heat-seal bar, are of stainless metal.

The base, approximately 20 in. square, is provided with suitable mountings so that it may be bolted to the working table, but it is heavy enough to be used without permanent mounting.

The vertical side, or jaw, of the machine, nearest the operator, which acts as a guide for forming one side of the package, is fixed. Its face is covered with a thin layer of rubber which serves to anchor the sheeting so it will not slip when the wrap is being pulled up tightly around the loaf during the packaging operation.

The adjustable plate, which forms the guide for the side of the loaf farthest from the operator, is mounted on two vertical brackets grooved at the bottom to slide along the edges of the base plate. The brackets are connected with a steel rod which locks the adjustable plate in place through the simple expedient of tightening a wing nut. Thus the machine may be adjusted to fit any conventional type of loaf being packaged, in a matter of seconds.

The heat-seal bar is suspended from its center at right angles to an adjustable metal arm which, in turn, is hinged through a bracket at the rear of the machine. A coil spring causes the arm, upon which the heat-seal bar is suspended, to assume an elevation of about 45 deg., so that it will be out of the way when preliminary preparations to the heat-sealing step are in progress.

The heat-seal bar is connected to the arm by a swivel arrangement, so that the operator may give the bar a rocking action in making the heat seal, assuring a good continuous bond on loaves of uneven contour. The arm is adjustable to length through aid of another convenient wing nut, so the seal can be made in the middle of the package, regardless of the width of the loaf.

The thermostat is adjustable with a hand rheostat so that accurate temperature control may be exercised to suit different operating conditions.

In operation, the packaging routine is conducted as follows: The operator places a single wrap across the top of the vertical guides, squaring it up with a line of printing against the top of the near guide. The overlapping sheeting is held firmly in place to prevent slipping when the loaf is placed. A second operator immerses a loaf in gelatin, then places it upon the wrapper, letting it down gently to the base plate which forms the bottom of the package mold.

The packaging machine operator starts the wrap by placing the portion of the wrap overlapping the near guide firmly upon the loaf. The other side of the wrapper is then pulled tightly over the first, forming a lap, which is held in place with fingers of one hand. The other hand is used to depress the heat-seal bar with its wooden handle, rocking firmly to complete a fast longitudinal seal the length of the loaf. Taking hold of the sheet, projecting beyond the ends of the loaf, it is lifted from the machine and placed on the table. Ends are twisted and tied with cotton cord, completing the cycle which may be resumed immediately for the continuance of operation.

The process eliminates entirely the "stuffing" operation. No soaking is required, packaging may be done on a dry table, the finished package is dry and clean and each package is "built around" its contents, conforming to variations in shape and contour without need of forcing or stretching. While one operator may readily handle the entire cycle of packaging operations, two usually are used so that the one who does the gelatin dipping need not handle the finished package.

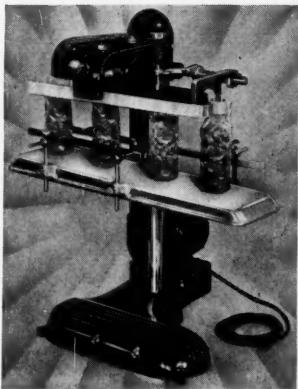
A new printing routine has been developed, making possible high-speed multi-color, process printing of the wraps. Material is fed through the presses in rolls and the individual wraps are cut and stacked at the discharge end of the press. Hairline register is thus achieved and the clear transparency of the unprinted portions of the wraps is in no way affected. The new rolls of the material may be spliced in as the end of the roll on the press is reached, with virtually as much ease as with common news print.

Although no public announcement or advertising has accompanied the new development to date, some 30 packing houses have adopted the new wrap and are now packing and distributing a wide range of meat loaf products throughout the country.

Credit: Rubber hydrochloride wrap material, a product of the Goodyear Tire & Rubber Co. Printed wraps, trade marked as Mil-O-Seal, converted by Milprint, Inc. Machinery designed and produced by Milprint, Inc.

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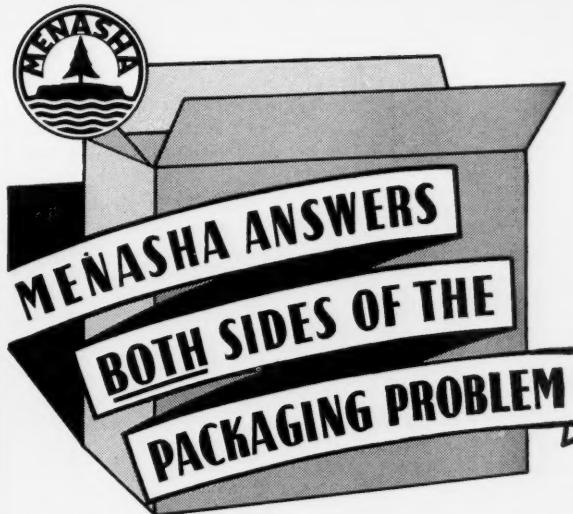
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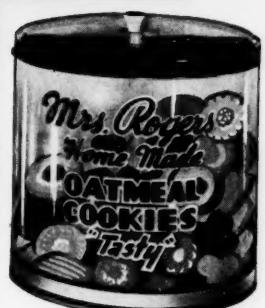
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Menasha's Precision Papers for Precision Packaging

Index of Advertisers

Addison Lithographing Co.	68	Lowe Paper Co.	65
American Can Co.	Inside Front Cover	Lowery & Schwartz	103
American Coating Mills, Inc.	3	Lusteroid Container Co., Inc.	103
American Nickeloid Co.	105		
Amsco Packaging Machinery, Inc.	105		
Anchor Cap & Closure Corp.	6-7	Marvellum Co.	Insert 28-29
Anchor Hocking Glass Corp.	6-7	Menasha Products Co.	105
Arabol Manufacturing Co.	61	Merit Display Card Co.	75
Armstrong Cork Co., Glass & Closure Div.	55	Michigan Carton Co.	Inside Back Cover
Bakelite Corp.	17	Monsanto Chemical Co.	108
Chas. Beck Machine Co.	99	Mundet Cork Corp.	22
Beetle Products Div. of American Cyanamid Co.	20		
F. N. Burt Co., Inc.	53	Nashua Gummed & Coated Paper Co.	Insert 8-9
Cameo Die & Label Co.	25	National Adhesives Div. of Nat'l Starch Products Inc.	85
Carr-Lowrey Glass Co.	13	National Can Corp.	23
Celluloid Corp.	26	National Industrial Advertisers Ass'n	12
Celluplastic Corp.	97	National Starch Products Inc., Nat'l Adhesives Div.	85
Chelsea Hotel	107		
Chicago Printed String Co.	11	Owens-Illinois Glass Co.	19, 27
Consolidated Packaging Machinery Corp.	91		
Continental Can Co.	Insert 26-27	Package Machinery Co.	80
Crown Can Co.	63	Peters Machinery Co.	95
Crown Cork & Seal Co.	67	Phoenix Metal Cap Co.	1
Dow Chemical Co.	5	Pneumatic Scale Corp., Ltd.	87
E. I. du Pont de Nemours & Co., Inc.	14		
Eastman Kodak Co.	59	Rathbun Molding Corp.	107
Federal Tool Corp.	101	Riegel Paper Corp.	21
Gardner-Richardson Co.	9	W. C. Ritchie & Co.	15
Hampden Glazed Paper & Card Co.	Insert 4-5	Royal Paper Corp.	Insert 12-13
Hazen Paper Co.	Insert 14-15		
Heekin Can Co.	57	Scovill Manufacturing Co.	30
J. F. Helmold & Bro., Inc.	18	Shellmar Products Co.	Back Cover
Hudson-Sharp Machine Co.	103	Standard-Knapp Corp.	93
Humitube Manufacturing Co.	99	Stokes & Smith Co.	89
Kalamazoo Vegetable Parchment Co.	4	Sun Tube Corp.	28
Richard M. Krause, Inc.	Insert 98-99	Sylvania Industrial Corp.	29
Weinman Brothers		Union Carbide & Carbon Corp.	17
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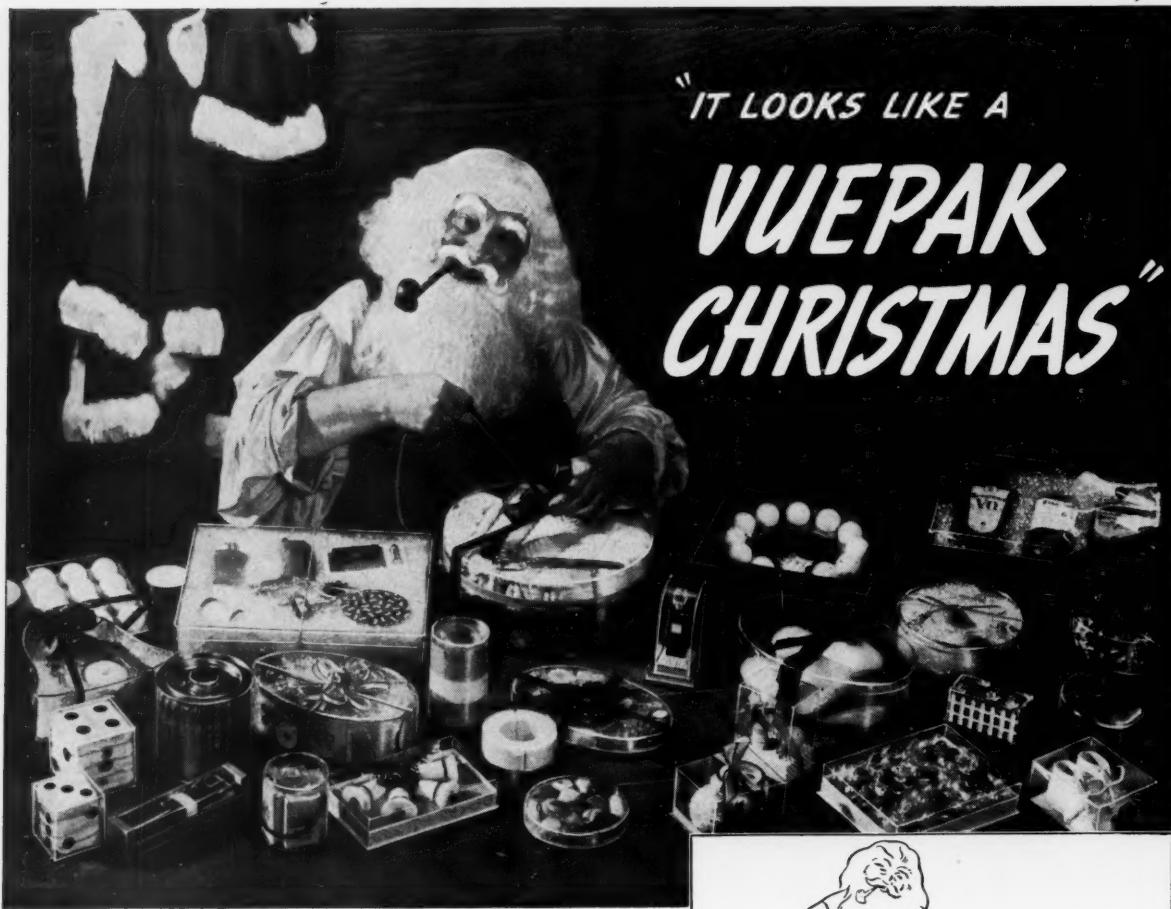
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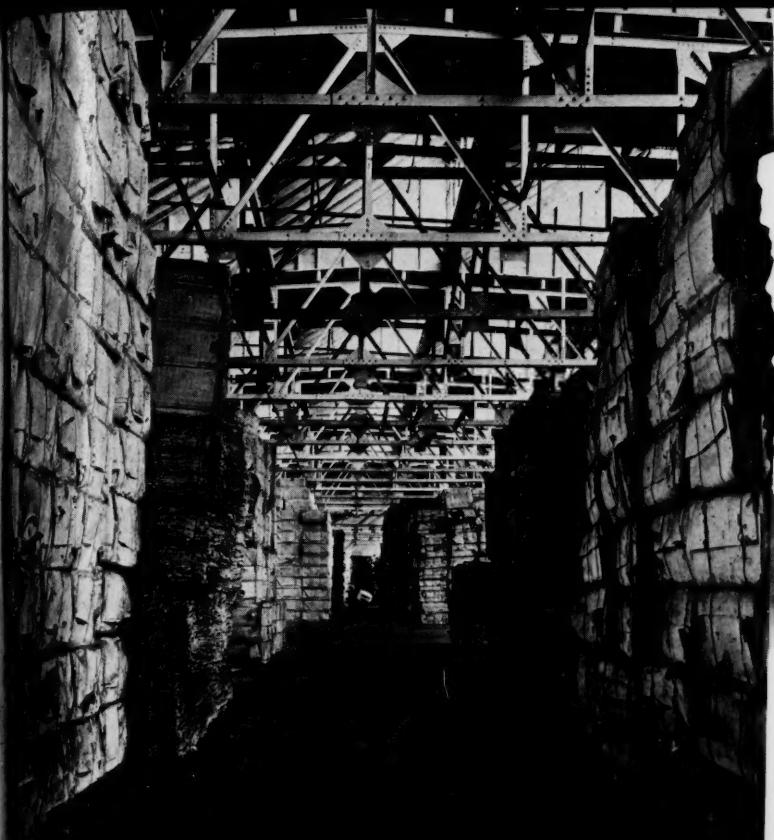
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1-16. A. G. Spalding & Co., golf balls (Package fabricated by National Transparent Box Co.). 2-7. Prince Matchabelli perfumes (Jos. H. Meyer Bros.). 3. Maurice Levy powder puffs (Hygienol Co.). 4. Schwab Bros. & Baer, cigars (Geo. V. Clark Co., Inc.). 5. Man's belt (Walter P. Miller Co., Inc.). 6-15-21. Parfums Charbert (Jos. H. Meyer Bros.). 8. Erasmic Old London Lavender (Clover Paper Box Co., Inc.). 9. Lightfoot, Schultz Co., soaps (A. Dorfman Co.). 10. Marshall Field & Co., Fieldcrest towels (Old Dominion Paper Box Co.). 11. Marton Freres bath salts (Hygienol Company). 12. Maria Danica, soaps (A. Dorfman Co.). 13. Marzipan candies (Cleveland Container Corp.). 14-24. Busy Bee candies (Central States Paper & Bag Co.). 17. International Shoe Company, slippers (Central States Paper & Bag Co.). 18. Daggett & Ramsdell perfumes (Wallace Paper Box Corp.). 19. Drury Lane English Lavender (A. Dorfman Co.). 20. Seagrams Distillers Corp., liquors (Wallace Paper Box Corp.). 22. Parfums Charbert (Wallace Paper Box Corp.). 23. Christmas candy box (A. Dorfman Co.). 25. Sonnenfeld's, Inc., hosiery (Central States Paper & Bag Co.). 26. Baby Deer Shoes (W. C. Ritchie & Co.).



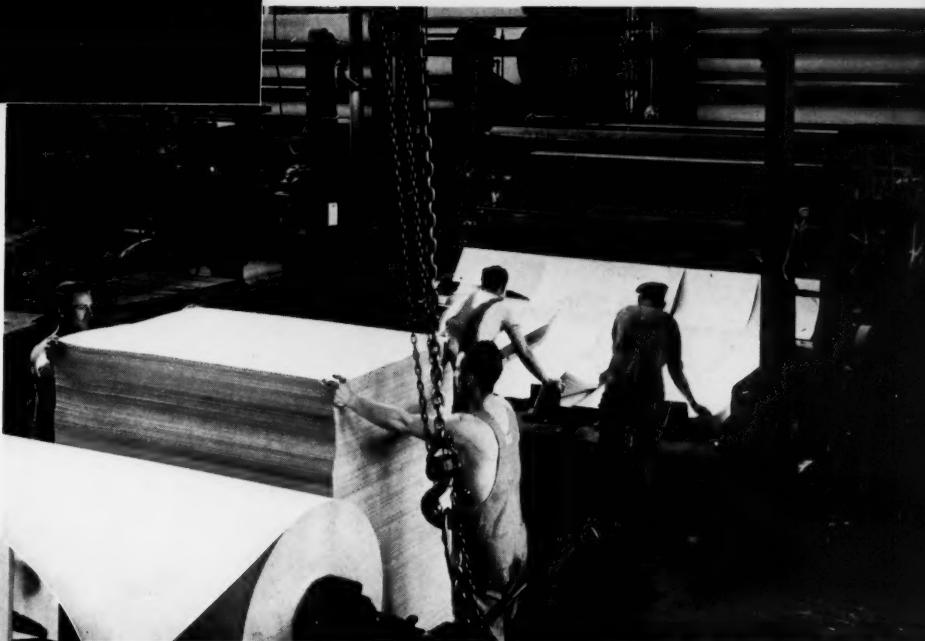


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